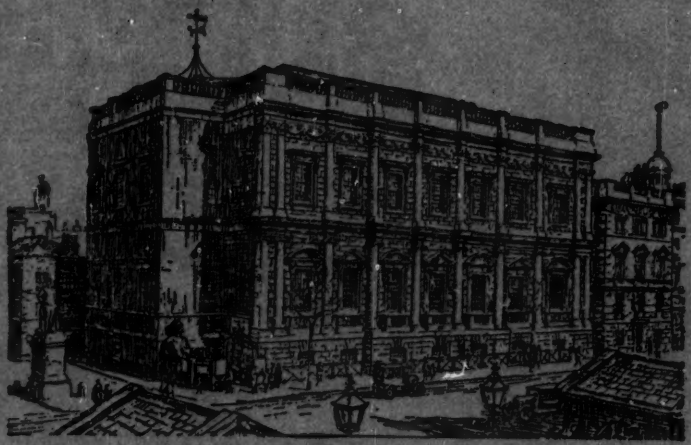
FEBRUARY, 1945

JOURNAL



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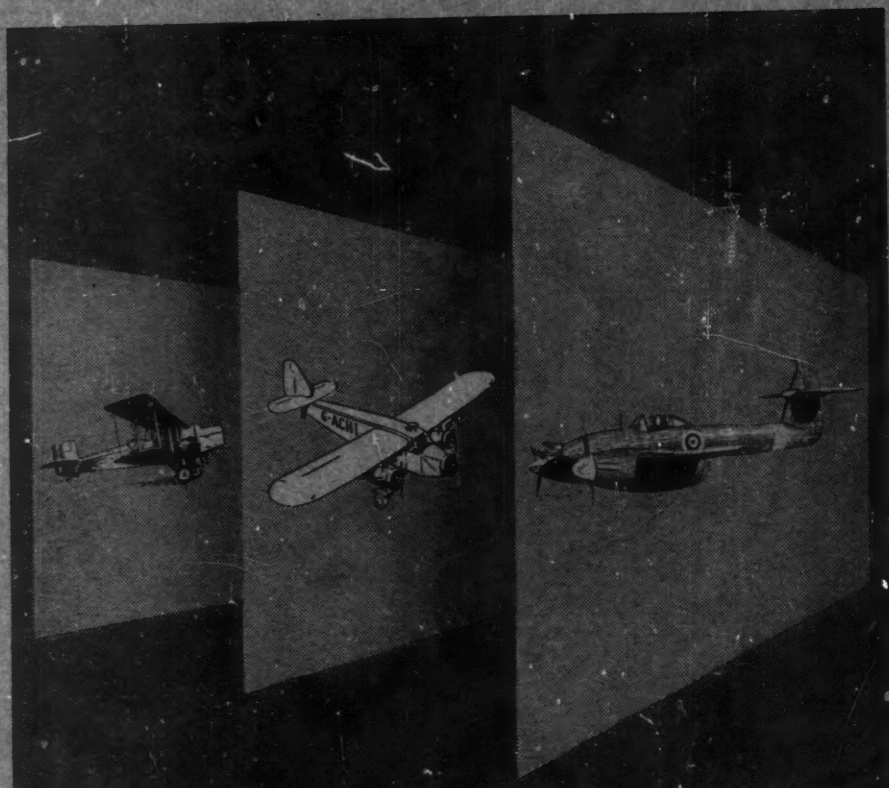

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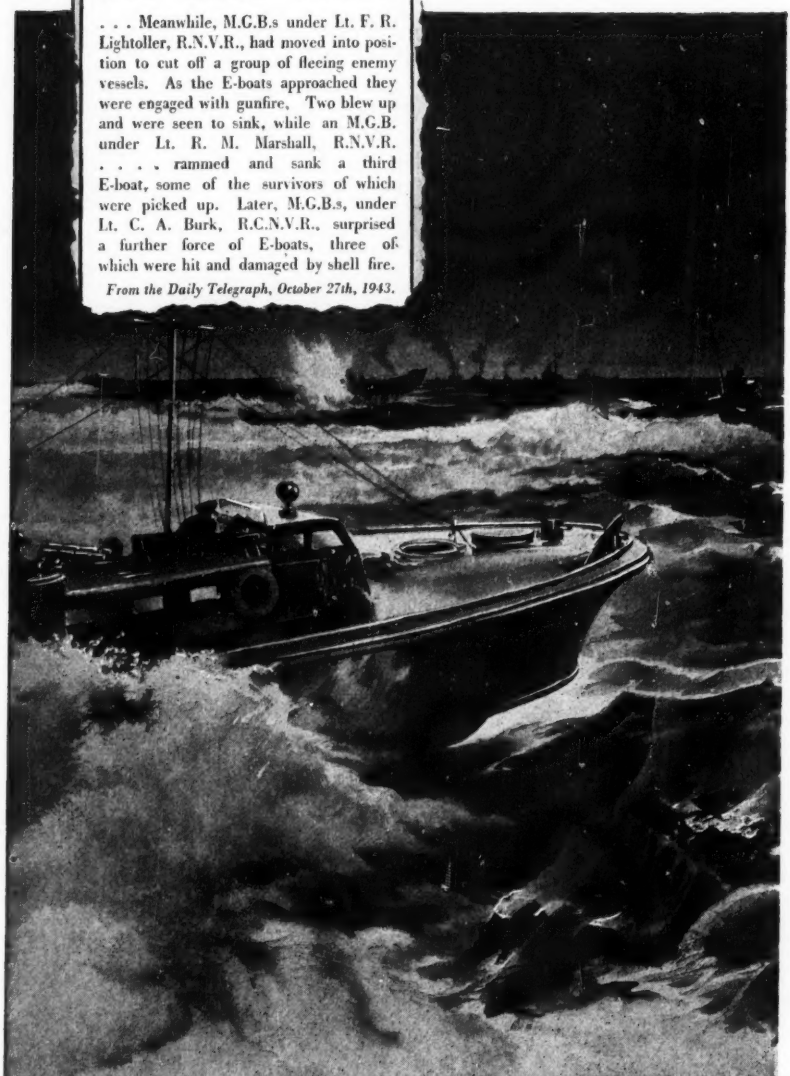
From the Daily Telegraph, October 27th, 1943.



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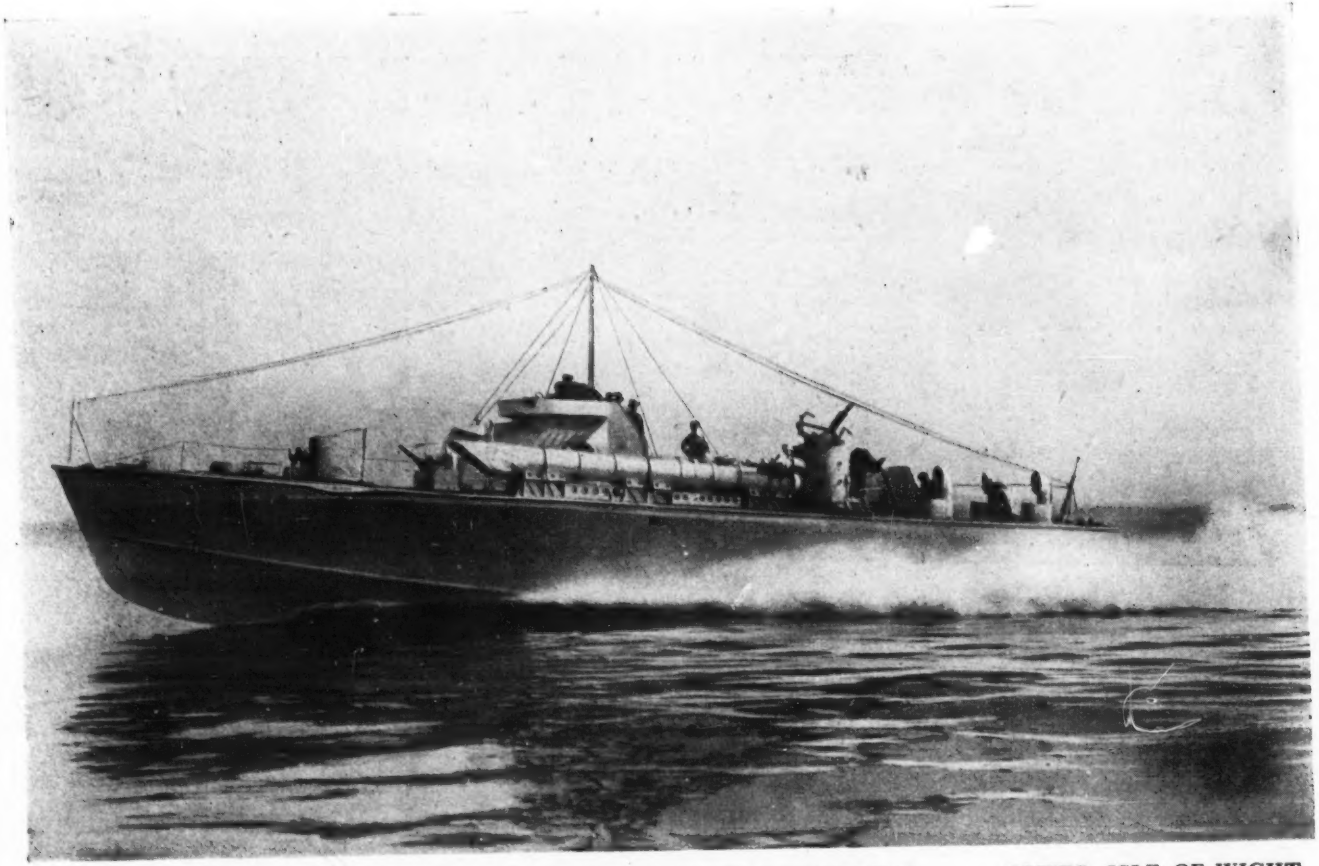

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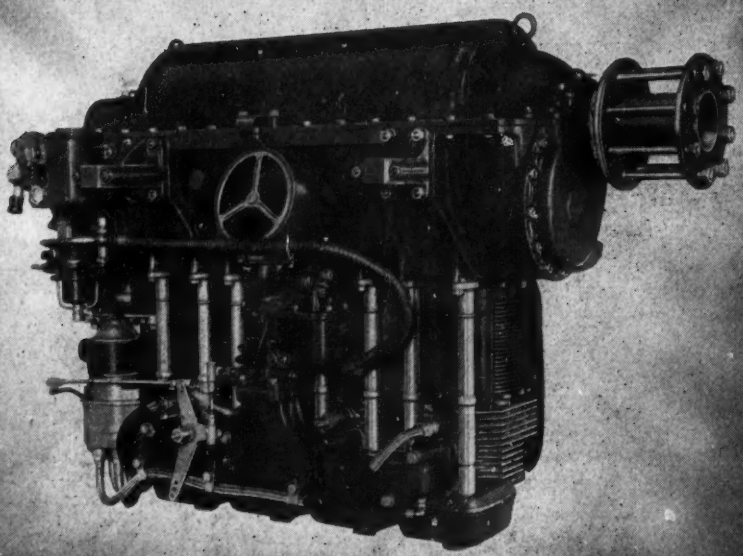

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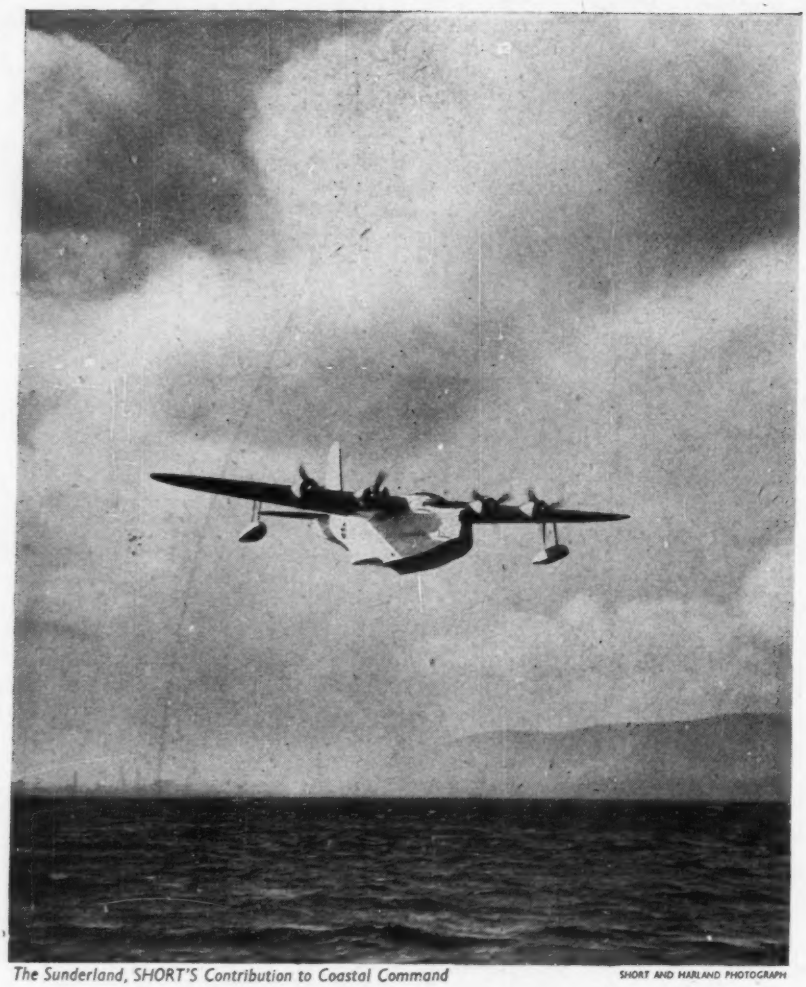

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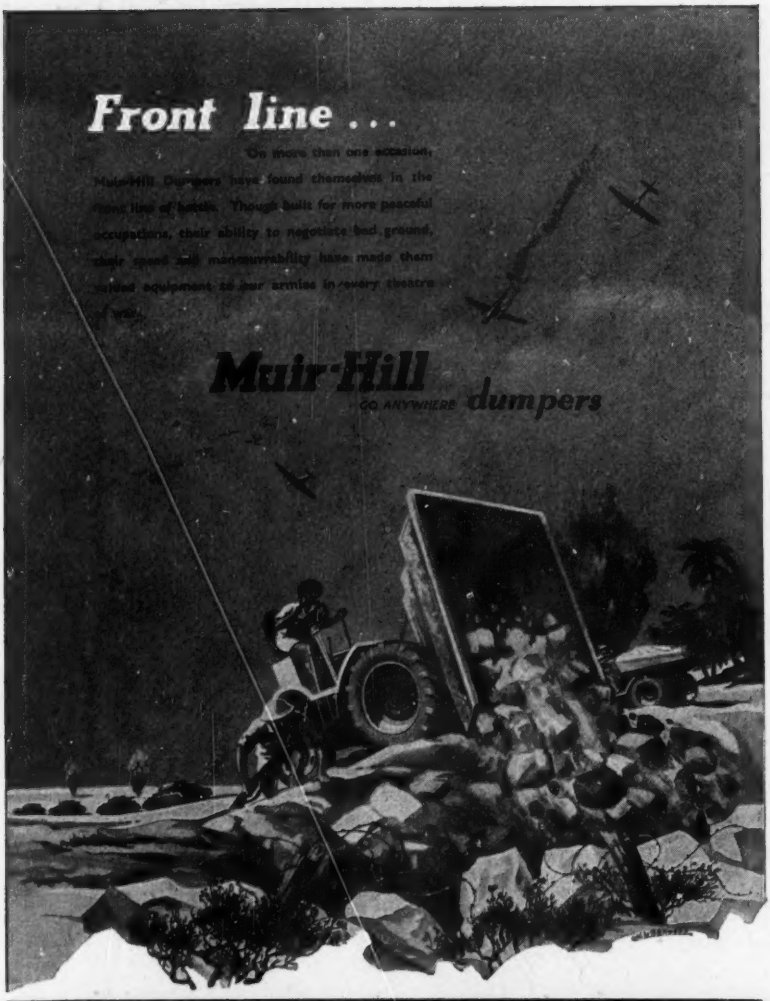
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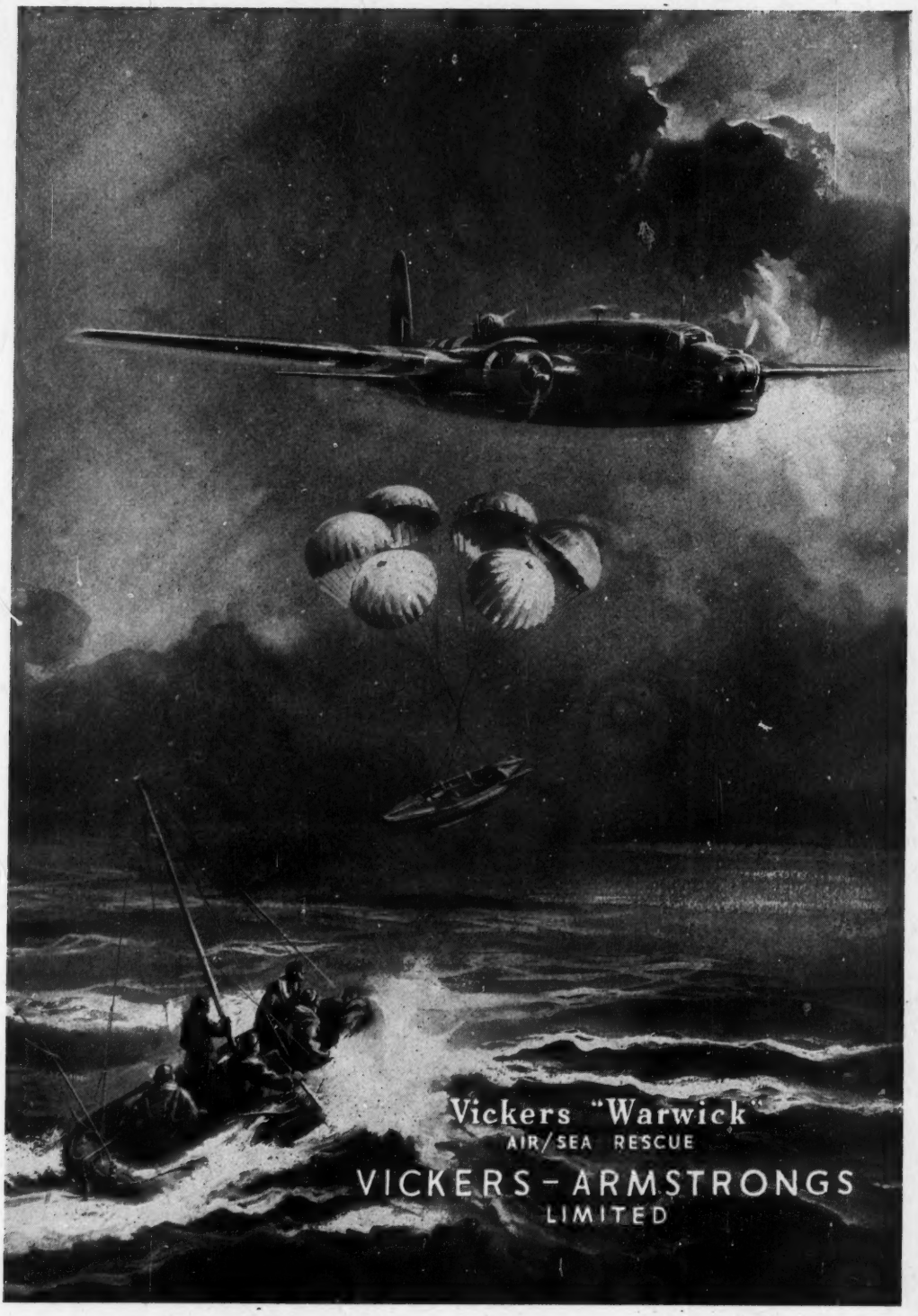
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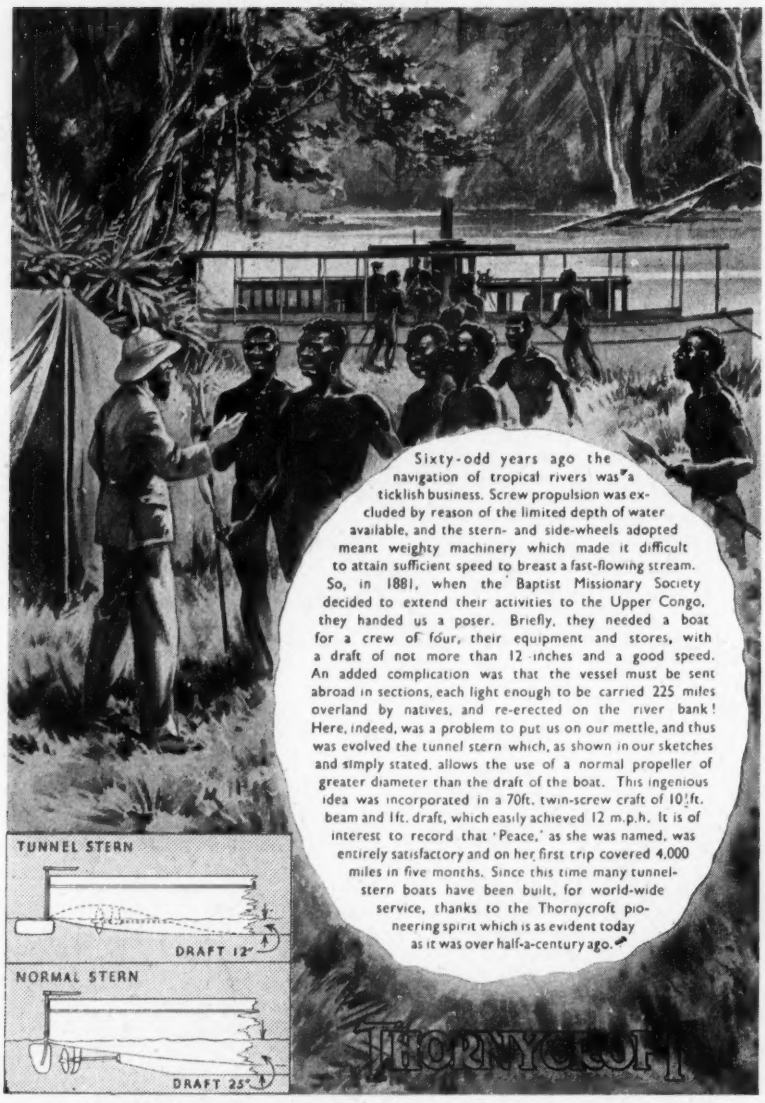

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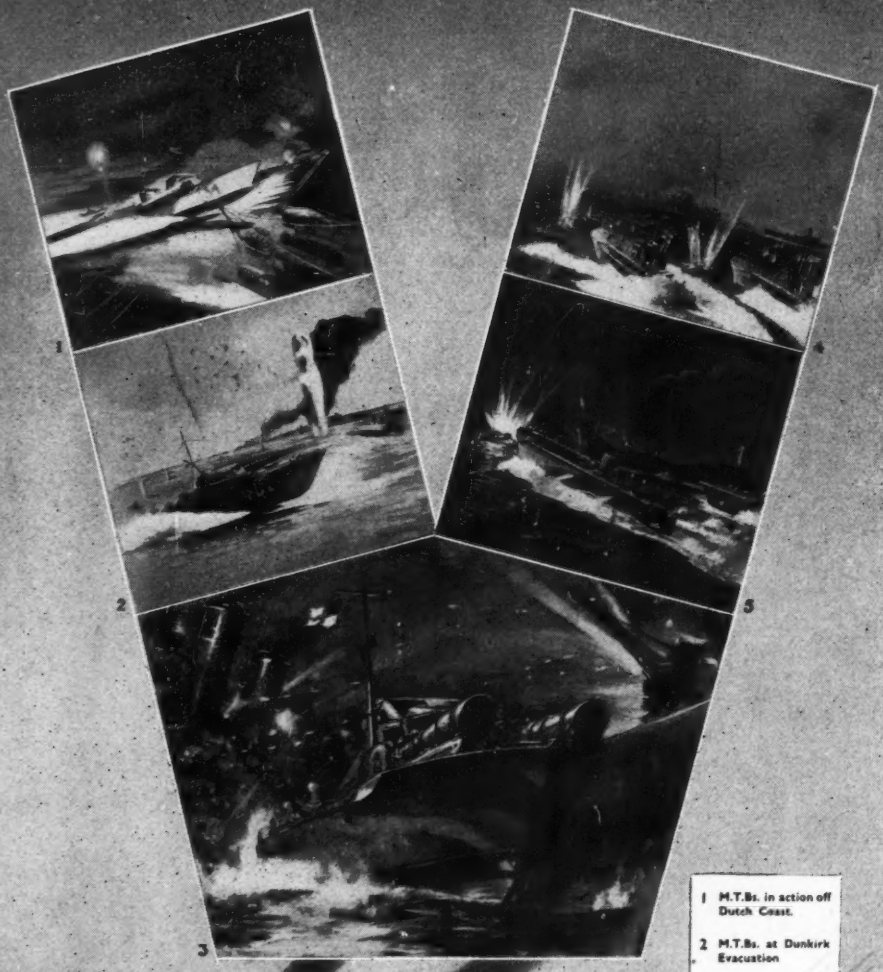

1 M.T.Bs. in action off Dutch Coast.

2 M.T.Bs. at Dunkirk Evacuation

3 M.T.B. torpedoes lock gate at St Nazaire.

4 Attack by M.T.Bs. on Scharnhorst (the late) and Gneisenau in Dover Straits.

5 M.T.B. sinks "U" Boat in Straits of Sicily.

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SECRETARY'S NOTES

February, 1945.

ANNIVERSARY MEETING

The Anniversary Meeting will be held at 3 p.m. on Tuesday, 6th March, 1945. The Council will present their Annual Report and Accounts, and there will be an election to fill the vacancies on the Council. Copies of the Annual Reports and Accounts for 1944 can be obtained on application to the Secretary.

COUNCIL

It is with great regret that the Council have to record the death of their Member, Admiral Sir William Goodenough, G.C.B., M.V.O. Admiral Goodenough served on the Council for ten years and in 1935 was their Chairman.

He had also been Chairman of the Museum and General Purposes Committee since 1937.

Elected Members

Admiral Sir Geoffrey Blake, K.C.B., D.S.O., has resigned from the Council on being appointed Black Rod ; the duties of that office preclude his attending their meetings.

Captain W. W. Davis, R.N., has been elected a Member of the Council to fill the naval vacancy caused by the resignation of Admiral the Hon. Sir R. A. R. Ernle-Erle-Drax, K.C.B., D.S.O.

Ex-officio Members

Commodore A. W. S. Agar, V.C., D.S.O., has accepted the invitation of the Council to become an ex-officio Member of the Council as President of the Royal Naval College, Greenwich.

Major-General P. G. S. Gregson-Ellis, O.B.E., has accepted the invitation of the Council to become an ex-officio Member of the Council on taking up the appointment of Commandant of the Staff College, Camberley.

Air Vice-Marshal R. Graham, C.B., C.B.E., D.S.O., D.S.C., D.F.C., has accepted the invitation of the Council to become an ex-officio Member of the Council on taking up the appointment of Commandant of the Royal Air Force Staff College.

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The following officers joined the Institution during the period 20th November, 1944, to 20th February, 1945 :—

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Captain J. E. Day, Royal Marines.

Captain R. W. Blacklock, D.S.C., R.N.

Midshipman D. A. de St. Croix, R.N.

Captain J. J. Day, Royal Marines.

Major F. B. Clifford, Royal Marines.

Lieutenant-Commander H. R. Treseder, R.N.

Sub-Lieutenant R. J. E. Craven, R.N.

Lieutenant Harry Slade, R.N.V.R.

Captain C. E. J. Eagles, R.M.

Sub-Lieutenant J. R. Burton, R.N.V.R.

Lieutenant I. N. D. Cox, D.S.C., R.N.

Lieutenant G. E. Langley, R.N.V.R. (S).

ARMY

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Captain A. H. Cartmell, The King's Regiment.

Captain A. N. D. Kerr, R.E.M.E.

Major W. C. Long, I.M.S.

Captain A. J. P. Massy, The West Yorkshire Regiment.

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Major E. G. V. Northey, The King's Royal Rifle Corps.

Captain P. S. Palmer, R.A.S.C.

Major J. G. Parker, Royal Artillery.

Lieut.-Colonel B. de L. Brock, M.C., I.A.

Major A. K. MacGeorge, M.C., The Royal Scots.

Major J. W. Tattersall-Wright, Royal Artillery (T.A.).

Major J. A. S. Daniell, D.S.O., O.B.E., late 14th K.G.O. Sikhs.

Major A. Abel Smith, 10th Royal Hussars.

Captain C. Paddock, M.C., Royal Tank Regiment.

Colonel C. F. Fleming, D.L., late Irish Guards, Colonel Commandant of Cornwall Army Cadet Force.

Lieutenant A. P. P. Ricketts, The South Staffordshire Regiment.

Captain S. Rabinowicz, Jewish Bn., The Palestine Regiment.

Major C. F. Cox, The South Wales Borderers.

Captain A. McK. Annand, The Royal Berkshire Regiment.

Captain V. S. Duncan-Jones, 5th Royal Inniskilling Dragoon Guards.

Major A. S. Irwin, M.C., The Essex Regiment.

Lieutenant A. D. Mansfield, Royal Artillery.

Colonel The Lord de Saumarez, D.L.

Major P. G. L. Cousens, The Duke of Wellington's Regiment.

Major-General J. S. Steele, C.B., D.S.O., M.C.

Major-General N. M. S. Irwin, C.B., D.S.O., M.C.

Captain M. G. Drakeford, The South Staffordshire Regiment.

Major H. Mitchell, O.B.E., G.M., R.E.

ROYAL AIR FORCE

Air Vice-Marshal A. C. Collier, C.B., C.B.E.

Flight-Lieutenant F. C. Walker, R.A.F.

Squadron Leader G. C. Ade, R.A.F.

William Courtenay, late R.F.C., R.A.F. and A.A.F.

Group Captain W. N. Gibson, D.F.C., R.A.A.F.

Flight Officer M. Y. Amberton, W.A.A.F.

Wing Commander R. S. Allen, D.S.O., D.F.C., R.A.F.

Flying Officer J. C. Leech, R.A.F.V.R.

Air Commodore S. H. C. Gray, O.B.E., R.A.F.

Captain W. R. Dainty, late R.A.F.

TRENCH GASCOIGNE PRIZE ESSAY COMPETITION, 1944

The following awards have been made :—

First Prize of Thirty Guineas :—

Colonel J. H. Whalley-Kelly, The South Lancashire Regiment.

Second Prize of Twenty Guineas :—

Major-General H. Rowan-Robinson, C.B., C.M.G., D.S.O.

The following essays are honourably mentioned :—

General Sir Brodie Haig, K.C.B., M.C.

Lieutenant-Colonel W. B. R. Neave-Hill, The East Yorkshire Regiment.

TRENCH GASCOIGNE PRIZE ESSAY COMPETITION, 1945—SUBJECT

The following subject has been selected by the Council for the Trench Gascoigne Prize Essay Competition (Three Services), 1945 :—

"For some period after the War, the maintenance of peace will have to be ensured, in the last resort, by joint armed action by the major Powers. Discuss the organization for bringing into joint action and for controlling the forces of these Powers."

JOURNAL

Members are invited to offer suitable contributions for the JOURNAL. Matter which might be of value to the enemy must, of course, be entirely eliminated, but there is still ample scope for professional articles which contain useful lessons for the present time; also contributions of a general Service character, such as Strategic Principles, Command and Leadership, Morale, Staff Work, Naval, Military and Air Force history, customs and traditions.

The Editor is authorized to receive articles from serving officers, and if found suitable, to obtain permission for their publication from the appropriate Service Department. Army officers are reminded that such articles must be accompanied by the written approval of the author's Commanding Officer.

REQUEST FOR BACK NUMBERS

The Editor will be grateful for any copies of the JOURNAL for February, 1941, which members may have finished with, in order to meet applications for this number.

CHANGES OF ADDRESS

Members are particularly requested to notify any change of address which will affect the dispatch of their JOURNALS.

Such notifications should be received by the 10th of the month preceding publication, *i.e.*, by 10th January, April, July and October.

LIBRARY

The Library is now reconstituted in the Institution, and applications for books on loan can be attended to as usual.

MUSEUM

War Relics

Members and others interested in the R.U.S. Museum are specially requested to keep a look out for relics of the present war of particular interest. So far the Museum has received a fair number of relics of Air interest, but very few of Naval or Army interest. Small relics can be received now and will be exhibited in the Special

Exhibition in the Theatre. It is requested that others may be notified to the Secretary with a view to their being preserved in a place of safety until the Museum is fully re-opened.

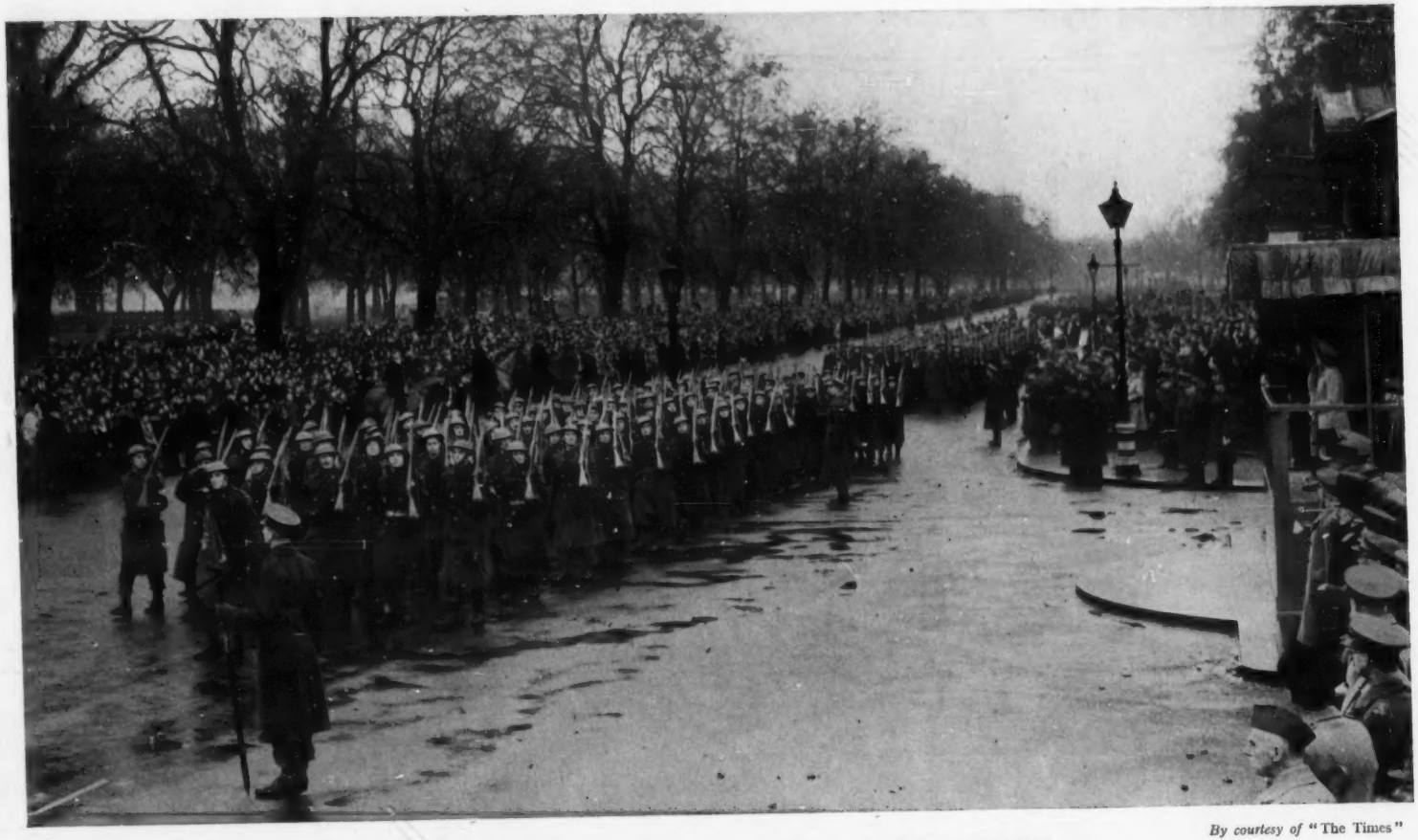
Considerations of space will inevitably preclude the acceptance of more than a limited number of small articles or models; but the Council desire to ensure that the Museum shall continue to represent the greatest achievements of the Services, their commanders, officers and men, throughout the ages. Personal relics of special distinction will in future, as in the past, be particularly acceptable.

Special Exhibition

A Special Exhibition depicting "The Soldier in History" is showing in the Banqueting Hall. The central aisle of the Crypt with the historical dioramas is also open. The Exhibition in the Theatre depicting "The Services in the Present War" is being continued.

Entrance to both the Museum and Theatre for visitors is by the turnstile at the Courtyard (Figurehead) door. No charge is made to members of the Allied Forces in uniform. The charge for admission to the general public is 1s.

The Exhibition is open daily (except Sunday) from 10 a.m. to 5 p.m. Members may obtain free vouchers for their friends by application to the Secretary.



By courtesy of "The Times"

STAND-DOWN PARADE OF THE HOME GUARD
H.M. THE KING TAKING THE SALUTE IN HYDE PARK, 3rd DECEMBER, 1944

THE JOURNAL
of the
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[Authors alone are responsible for the contents of their respective Papers. All communications, except those for perusal by the Editor only, should be addressed to the Secretary, Royal United Service Institution.]

MORALE

By BRIGADIER E. H. A. J. O'DONNELL, C.B.E.

On Wednesday, 6th December, 1944, at 3 p.m.

GENERAL SIR RONALD F. ADAM, BT., K.C.B., D.S.O., O.B.E., in the Chair.

THE CHAIRMAN: I have pleasure in introducing to you Brigadier O'Donnell, who is the head of my Co-ordination Branch. He is also incidentally joint Chairman with an American officer of an Anglo-American Relations Committee which has been dealing with the relations of the two Forces ever since the Americans came over here, and he is also Chairman of a Committee that has dealt with problems that arise in the three Services in the Far East, particularly on the morale side, so he has had considerable experience in dealing with morale questions in this war.

LECTURE

I THINK it will be generally agreed that a lecture is more enjoyable if the audience know what it is about. It is an added advantage if the lecturer himself knows what he is talking about. I should like, therefore, to be able to start this lecture with a short comprehensive definition of morale which would be universally acceptable. Unfortunately, it is far more difficult to do this than one might imagine. We all know what we mean when we talk of morale, but the trouble is that we do not all mean the same thing. To some people the word denotes supreme courage and fighting qualities in the face of the enemy—and no more than that. To others, the word conjures up visions of woollen comforts and cups of tea. Others, again, regard morale as being synonymous with good discipline.

All these definitions contain part of the truth, but none contains the whole truth. It may be that the general haziness about morale is due, in part, to our using a French word instead of an English one. However that may be, the fact remains that morale is the word generally used, and I suppose we must now try to make the best of it.

COMPONENTS OF MORALE

Before we try to arrive at a satisfactory definition it may be profitable if we analyse what, I suggest, are the basic ingredients of morale. As I see it, morale is a combination of qualities of the mind, of the spirit and—to a lesser extent—of the body. Morale is an attribute of mankind all over the world, but it takes different forms in different countries. There is the morale of the totalitarian State where the individuals are regarded merely as minute parts of the State mechanism and of

no importance whatsoever except in so far as they serve the interests of the State. As one would expect, morale in such countries is of the mass-produced type. It is produced in terms of quantity rather than quality and it is not built to last. It can be, and is, very formidable, but it obviously depends for its maintenance on a continued belief and confidence in the State regime. It is the morale of the herd, rather than of the individual; and if the leaders of the herd fail, collapse of the national morale must follow swiftly. Then you have the morale of the fanatic, based on blind faith in the divine mission of the head of the State or of the nation as a whole, such as exists in Japan. Here again, such morale can reach extraordinarily high levels and present strong resistance. But, in this case also, it is the morale of the herd; and once the illusion of the divine mission is effectively dispelled, the national morale will sink to a very low ebb.

It will be seen, therefore, that in both these cases morale can reach an extremely high pitch, but is dependent on the continued success of leaders who are masquerading as all-powerful beings. These forms of mass morale are very formidable but also very vulnerable.

Lastly, we have the type of morale shown by the individual citizen of a free country where each man is different in some degree from his fellow and where national morale represents the aggregate of the morale of individuals. There is an element of the spiritual about it, but nothing mystical. It is grounded not on mass illusion, propaganda or the herd instinct, but on the faith of the individual citizens in their cause, their leaders, and themselves.

I would say, therefore, that the principal component of morale is *confidence*. May we now consider the matters in which the fighting man must have that confidence, how that confidence can be aroused, and how it can be destroyed.

The first requisite is that the fighting man should know what he is fighting for and should accept that cause as a just one. No doubt, there was a time when fighting men were just so many unthinking physical bodies who only asked to be given weapons, food and a right to loot. That day is far behind us. The democratic citizen of 1944 is generally an intelligent and reasonably well educated man who wants to know something about the rights and wrongs of the dispute to which he is asked to devote perhaps his life, and certainly years of discomfort and dislocation. He is no longer content to be actuated by slogans—he requires a sense of purpose. He does not want to examine all the details and niceties of the diplomatic negotiations which preceded the outbreak of war. All he wishes to know is that the basic principles involved in the dispute are such that his country cannot with honour avoid going to war, and that he is on the side of decency.

Provision has, therefore, been made for the British fighting man to be given all the facts in order that he may be conscious of what is at stake. This is secured by the opportunities for discussions throughout the Services based on the admirable pamphlets issued by the Army Bureau of Current Affairs and such informative booklets as the series entitled "The British Way and Purpose."

Given confidence in his cause, the fighting man naturally wishes to be assured that the Government of the day is one which will play fair by him and his dependants and is one which he is perfectly free to criticize to his heart's content.

Next, it is absolutely essential that he should have confidence in his military leaders. It is even more important that he should trust his own officers and N.C.Os. than that he should like them. If he does both, so much the better, but it is absolutely vital that he should trust them. No officer can regard himself as efficient

if he has not got the confidence of his subordinates. This feeling of trust, however, does not arise spontaneously. It calls for very active and continuous effort on the part of the officer. First, the officer must know his own job from A to Z; secondly, he must know and trust his men completely; thirdly, he must be keenly interested in his men and in his job; he must treat them as human beings, each with his own individual characteristics, and not as so many robots. Once the British fighting man has given his trust to an officer and knows that that officer will do his best for his men, both in and out of action, and think of them before himself, that trust will never be withdrawn.

Obviously it is a great advantage if the troops also have implicit trust in their Commander-in-Chief, but it is even more important that there should be this complete bond of confidence between the men and their own immediate officers. This mutual confidence is a vital element in the field of morale. Without it, no unit can ever show 100 per cent. efficiency; with it, any unit can be relied upon to do its job—and a bit more—under any conditions, good or bad. The essence of true leadership is the ability to inspire confidence, both on and off the actual battlefield.

Lastly, and most important of all, is the necessity for *self-confidence*. This is dependent on many factors. In the first place the morale of the fighting man cannot be at its highest pitch unless he knows his job, is fit to do it, and has the right tools to do it with. In order that he may know his job it follows that his training must be of the best, and perhaps here I might venture a word or two on training.

To attain its object, training must consist of intelligent teaching which arouses and sustains the men's interest. Training should never deteriorate into routine repetition and drudgery merely for the sake of "filling in time" and "keeping the men occupied and out of mischief." The object of training is not to turn a man into an unthinking automaton. I suggest, therefore, that it is just as important to tell the recruit why he has to do things as it is to tell him how to do them. The age of "Their's not to reason why, their's but to do or die" is finished. A fighting man who knows the job, *and why the job is necessary*, is worth twice the man who just knows how to do it but is left to wonder what is the use of it all. The modern technique of "briefing" junior officers and men before an operation has been proved to be invaluable.

Next, the soldier must be fit to do the job allotted to him. I do not mean by this that unless a man is blessed with magnificent physique and stamina he cannot have high morale. Nothing is further from the truth and it is fortunate that this is so, seeing that a large proportion of the men called to the fighting forces during the war are of necessity in the lower medical categories. But there is no reason why a man of limited physical capacity should not have as high morale as anybody else, provided that he is not given a job to do which is beyond the limits of his physical capacity. I well remember a bombardier I once had who, from a physical point of view, was a somewhat lamentable figure. He was rather deaf, flat-footed and narrow-chested, but I do not recollect any man whose enthusiasm for his job—and, consequently, morale—was higher than that of my bombardier. In fact his job lacked glamour, as he was the bombardier in charge of the sanitary squad, but the pride that that man took in the efficiency of an incinerator which he himself had designed was magnificent. This leads me, therefore, to mention the supreme

importance of getting the right peg into the right hole. Nothing is more destructive of morale than for a man to be given a job for which he is neither physically nor mentally suited.

Having trained the soldier well and put him into his correct niche, it is then very necessary that he should have confidence in his weapons and equipment. The importance of this is manifest, but none the less I regard it as of less importance than the confidence of the soldier in himself and in his leaders. Well led troops with inferior equipment will every time beat well equipped troops who are badly led. But it goes without saying that our fighting men have a right to expect the best tools obtainable for the job and that these factors undoubtedly increase that vital element of self-confidence which is so essential.

I should like to bracket with this all-important element of self-confidence the necessity for the soldier to have confidence and pride in his unit and in his comrades. Unfortunately, the exigencies of modern warfare—certainly in a global war of the present kind—make it literally impossible to guarantee that units will be exclusively composed of men from the same locality or, indeed, that units can always be kept together, or even retained as units. There are few greater handicaps to the building of morale than this cruel necessity for the occasional breaking up of units, the inability to secure that officers and men who have got to know and trust each other can be kept together throughout a campaign. The reasons for this are long and complex and I do not propose to enter into them to-day. It must suffice to say that no one in the War Office nor, I imagine, anywhere else, has the slightest doubt that it is destructive of morale to have a continuously changing population in the units. But nobody who has had the opportunity to study this problem in all its ramifications can have any doubt that some considerable mixture of personnel is quite unavoidable. All I can say is that every possible effort is made, and will be made, to keep units together whenever it is possible to do so.

In the past, the British Army has been consistently starved, during the uneasy intervals between wars, of equipment, of man-power, and of money. But we have had one tremendous asset which was proof against all economy campaigns. That is the Army's history and traditions which enshrine the spirit of its Regiments and Corps. The regimental spirit cannot be instilled too early or too often into young officers and men. It will fill them with a lasting pride which nothing can shake and will serve as a buttress to their morale as nothing else can do.

AIDS TO MORALE

Now, in the limited time at my disposal, I have ventured on a somewhat cursory analysis of what I believe to be the basic ingredients of morale, namely, confidence of the fighting man in his cause, his leaders, his unit and comrades and, above all, in himself. I have confined my remarks to those fundamental matters which are necessary for the *creation* of morale. Time will not allow me to deal in any detail with the numerous amenities and services which can contribute to and sustain morale. Such things as a good cheap mail service; up-to-date newspapers and books; good and cheap canteens; bathing and laundry facilities; leave hostels; entertainment; legal advice bureaux. All these things, and many others which will occur to you, are invaluable *aids*; but they do not, of themselves, *create* high morale. A unit may be provided with excellent canteens and baths and shows, etc., but if there is no trust and mutual respect between the officers and men, morale will be low and will remain so. N.A.A.F.I. and E.N.S.A.—admirable as

they are—are no substitutes for the regimental spirit and true comradeship *within* the unit.

As the war goes on I think that the Services and the public are becoming more and more " morale conscious." Five years of total war impose a heavy strain on all of us, and the supreme importance of morale only begins to assert itself when the strain is beginning to make itself felt.

Morale tends to be overlooked in some quarters because of a misguided belief that it is somebody else's job to look after it. Many people seem to think that it is a matter, purely and simply, for the Welfare services. Others think that if the morale of a unit is bad it is only a question of discipline gone wrong. Only too many people are content to think of it as rather a whimsy sort of subject which is a question for the " A " staff to look after. Surely, all this is dangerous rubbish ! In fact, the maintenance of morale is *everybody's* job, and perhaps that is the reason why it sometimes comes to be regarded as nobody's job. It is a matter for the careful consideration and *action* of all branches of the staff, " G," " A," and " Q." Above all, it is a matter for the Commander and the regimental officers. I know of no officer, whether staff or regimental, whether Army Commander or subaltern, who is entitled to say " morale is not my job." In particular, the services such as welfare, medical, chaplaincy, educational, etc., have a very large part to play in its maintenance.

BEHIND THE LINE

There is just one other fallacy about morale with which I should like to deal. That is the idea that it is only really important in connection with the fighting troops and then only when they are in action. Clearly, it is quite essential that the morale of the soldier, when in battle, should be at its highest pitch. Nobody would dispute that. But it would be a grave error to suppose that it is *only* in actual battle that morale matters. No matter how good the morale of the fighting unit may be, the battle will be lost if the administrative troops, who are responsible for supporting the men in battle with supplies, etc., fall down on their part of the job. And if their morale is low, they will let down the men in front.

Moreover, whilst success in battle is the finest stimulus, it must be remembered that high morale is even more vital in times of difficulty and defeat than when everything is going well. It was morale which caused Dunkirk to be a triumphant withdrawal instead of a disorderly and fatal rout. Not even the gallantry of the Few in the Battle of Britain could have availed, if it had not been that the morale of the whole country was magnificent—in fact " Churchillian " in its power and strength.

We must remember, too, that in these days of mechanized warfare nearly half the troops in a theatre of war seldom, if ever, even see the enemy, much as they would like to. Their jobs are very important, but lack all the excitement and adventure. Therefore we arrive at the conclusion that although morale is vital in the front line it is, in some respects, easier to maintain there than in the rearward areas where men are more liable to rust from monotony and boredom. Transit camps and such places, where there is a large floating population with nothing particular to do, are the most difficult spots in which to sustain morale.

Personally, I hope the day will come when it will be the whole-time job of an officer in every formation to be responsible for watching and co-ordinating all the measures which are necessary to induce and maintain a high state of morale. It has always been a matter of surprise to me that we afford specialists in a thousand

other subjects, but none for this. I should have thought that the importance of morale is such that it calls for the whole-time study of specially selected officers.

FACTORS WHICH RAISE OR LOWER MORALE

Let us consider now some of the ways in which morale can be stimulated and also some of the factors which tend to depress it. I have been trying to emphasize the paramount need for the soldier to have confidence. Perhaps we have been looking at the man so far primarily as a soldier rather than as a citizen. After five years of war it is easy to overlook the fact that between 80 and 90 per cent. of our fighting forces to-day are really citizens in uniform and not professional soldiers. But whether or not we are apt to forget this, we must realize that the men themselves are always conscious of it. Although they have proved to be magnificent soldiers in the time of need, we must remember that soldiering is not the " be all and end all " of their lives as it is in the case of the professional Regular Army. The citizen soldier's ambitions and interests must still remain focussed ultimately on his future as a civilian, on his business, and on his home. After all, it is for the preservation of these things that he is fighting. Therefore it can never suffice for an officer to look upon his men just as so many soldiers who have no anxieties and no thoughts apart from soldiering.

It is a most important element in begetting the confidence of the soldier in his officer that the latter should make it plain that although the last thing he wishes to do is to pry into the private affairs of his men, he is nevertheless always there to act as a friendly adviser. Inevitably, under war conditions, and especially after long years of separation, difficulties arise in connection with the soldier's private affairs. Perhaps his business is threatened with collapse ; perhaps his home has suffered in the blitz ; if he is a single man he probably has parents or a sweetheart about whose welfare he is naturally deeply concerned ; if he is a married man—and over half the Army are married men—he has all the cares which are the lot of a husband and a father. No matter how well trained or how keen a soldier he may be, it is absurd to suppose that his efficiency and his morale can be unaffected by these private anxieties and worries. Circumstances make it impossible only too often for him to go to his home and sort things out for himself, except in the most extreme cases. It may well be that nobody can provide a ready solution to all his difficulties but, even if this is so, it will make all the difference to the soldier if he knows that he can turn to his officer, if only as a sympathetic listener. In the majority of cases, however, the officer can do much more than just offer sympathy. He can offer useful advice either from his own resources or by discussing the case with older officers or the doctor or the chaplain. There are also the many fine voluntary organizations which concern themselves with the welfare of the soldier and which are ready and eager to do everything that can be done to ease his burden. In a good unit every man should feel that the first person to whom he can naturally turn for assistance in his troubles, whatever they may be, is his own officer.

Again, it is very necessary to combat the idea which is prevalent in the minds of many men after they have been overseas for a long time that they are forgotten men with no future. Modern conditions of warfare sometimes make it difficult for men to be kept acquainted with the various plans made by the Government for the betterment of conditions after the war. It is a most useful aid to the maintenance of morale that the men should be made to realize that these plans are not being made for " the other fellows " but, primarily, for the men themselves.

I would class anxiety as Enemy No. 1 of morale. It saps the soldier's self-confidence and distracts his attention from the job in hand. It may be anxiety about his job in the Army, anxiety about his family, or anxiety about his future. Whichever form it may take, it is up to the officer to see what he can do to help.

Another way in which the morale of units can be sustained is to see that their exploits and hardships are not passed unnoticed. All of us have a natural streak of human vanity and are barely satisfied merely with the consciousness of a deed well done. Care should be taken to ensure that no unit is undeservedly overlooked in this matter of reasonable publicity. It is not a question of braggadocio, but merely of a natural desire that the people at home should at least know something of the efforts and sacrifices being made by their fighting men.

This brings me to a few observations about the Press and the B.B.C., and the enormous influence which both can exert on morale for good or ill. Speaking generally, I should like to offer a humble tribute to the vast majority of the Press for the great efforts they make to stimulate and maintain morale. There are, of course, black sheep in every flock and the Fleet Street flock is no exception to the general rule. I would like to stress the great and grave responsibility which lies upon the journalist and upon the broadcaster in this matter. A careless or irresponsible article, even an ill chosen illustration, can create havoc with the morale of men who have been exiled from home for years. I am not asking for the suppression of news, and much less for the suppression of truth. There is, of course, sometimes a distinction between "news" and "truth." But I do plead most earnestly that those in authority should maintain the most careful watch, not only on what they publish, but on the way it is presented. I am absolutely certain that no British journalist would deliberately sabotage the morale of fighting men overseas. I only ask that editors and sub-editors should always remember that it is just as damaging to us, and comforting to Goebbels, for morale to be depressed as it is for military secrets to be disclosed.

I have mentioned anxiety as being Enemy No. 1 to morale. I would put boredom as a close second. You can imagine the difficulties of sustaining morale amongst men who have a monotonous, dreary job to do, day in day out, in some remote and probably uncomfortable place. This is where the good officer can show his worth. The men must be given a sense of purpose. They cannot be told too often how necessary their job is. They must be encouraged. Entertainment is hard to come by in such places. It is all the more important to procure the best that can be provided or, better still, extemporized amongst the men themselves. Local talent should be used to the full. Every effort must be made to combat monotony. As far as possible, men on routine work should be "turned over" constantly. Avoid stagnation of the mind as you would the devil.

IMPORTANCE OF MORALE

Now let me say a word or two about the importance of morale. It is almost incredible but, unfortunately, it is true, that only too many people content themselves by just paying lip service to it. I cannot help remembering three conversations I have had during this war. I was told one night at dinner by one of our younger statesmen that "nothing mattered" in comparison with the supply of bombers. A distinguished Lieutenant-General plainly regarded me as a lunatic because I found myself unable to agree that the only real requirement for victory was a sufficiency of armour. Another very eminent soldier assured me

that success depended on an adequate supply of airborne troops—provided we could count on that we need not worry about anything else! I don't want to be unfair to any of these distinguished gentlemen, and I am quite sure they cannot have meant to be taken literally, because it is manifest rubbish to think that victory can be secured in this or any other war solely through the instrumentality of one particular arm or weapon. *The most important and vital weapon in the hands of any country at war is its fighting man.* Perhaps the day will come—sooner than we think—when we shall live in deep caves and wage war on each other by pressing buttons and emitting rays and robot bombs. But that day has not come yet; and even if it does come, the morale of the people at the "receiving" end of the bombs will still be the determining factor as to who can last out longest.

Too often, it is sugggested that considerations of morale must give way to operational considerations. I am afraid I have failed dismally to make my point to-day unless I have satisfied you that morale *is* an operational consideration and one of the very first rank. Nobody doubts that the supply of guns and ammunition has very definite operational significance. Until the day arrives when we can hypnotize our enemy into impotence instead of blasting him into eternity with steel, presumably guns and ammunition will retain their operational importance. To be of use, the guns must be kept in the best possible trim. Is it less important that the men who man the guns should be kept in the best possible trim? Does it really make for success in battle to have first-class equipment, but disgruntled men? I think a moment's thought must satisfy everyone that morale is, always has been, and always will be a matter of supreme operational importance.

If there be any doubt still remaining on this point, may I quote from one of the greatest leaders of this or, I venture to think, of any other war—Field-Marshal Montgomery. In some notes which he issued only last month to the 21st Army Group the Field-Marshal said:—

> "A high morale is a pearl of great price. The more I see of fighting, the more I am convinced that the big thing in war is morale; it is probably the most important single factor."

It may be of interest to those of you who are not familiar with the present machinery of the War Office if I just mention in passing the method which has been devised and, incidentally, initiated by the present Adjutant-General, to survey and tackle this all-important problem. Every Commander overseas and every Commander at home renders every quarter to the War Office a very full report on the morale of his troops. All this material is sifted with the utmost care, and every month the Adjutant-General himself personally presides at a meeting attended by every Director in the War Office who can usefully contribute to the solution of any of the problems raised. Many improvements in the lot of the soldier have been initiated through this committee and I, for one, will be sorry if this invaluable machinery were ever to be dispensed with, whether in peace or war. Incidentally, I should like to add—although I know I do it at my peril in the presence of the Adjutant-General—that I trust the Army will come to realize, if it does not do so already, how very fortunate they have been in having General Sir Ronald Adam as Adjutant-General through these difficult years. If I may say so, I know of no officer in the British Army who has the welfare and good of the men more at heart than he has or who has done more in a practical way to ensure their well-being.

Now, ladies and gentlemen, I owe you all an apology for having depressed your morale by such a lengthy and, I am afraid, complex lecture. I am very

conscious that I have not covered all the ground, but I have tried to show the supreme importance of morale and to touch on some of its principal constituent factors. I started by pointing to the difficulty of defining it. May I end by attempting to do so? I would say that morale "is the spirit which impels us all to give and to go on giving of our best, even when we have to endure the worst."

DISCUSSION

CAPTAIN H. F. NALDER, R.N.: The Lecturer rather stressed the part that confidence plays in morale, if I understood him rightly, although I think he modified this at the end of the Lecture. I think that rather tends to make us feel that morale is a mental affair. I do feel that the physical and the spiritual are at the bottom of morale and that it is not mental.

THE LECTURER: I would say it is a blend of the three. It is difficult to fix the proportion of each. I think the mind comes into the question, in that our kind of morale is a reasoned business. I think a man wants to have confidence. He also wants to know why he should have confidence, and to that extent I think his mind is the tutor to his spirit. I think, therefore, morale is a blend of the three; it is mental and spiritual and occasionally, after, say, a very dirty rough night, it is physical.

MAJOR C. H. B. PRIDHAM: Could the Lecturer give us the exact wording of the famous remark by Napoleon about morale?

THE LECTURER: I did make up my mind that I would not quote that, because I have never yet heard an address on morale in which it was not introduced. I think Napoleon said that "morale is to the material as three is to one."

COLONEL F. H. SMITH: Would the Lecturer add to his excellent suggestions of preventing anxiety and boredom the subject of appreciation? I know so well that a man very often has a down-and-out sort of feeling. At a discussion the other night at a Brains Trust we were hearing the various views of different men, and one said: "Yes, he is a V.C., but he may be wheeling a barrow after the war." A well-known General said that the appreciation of a nation seldom lasts in a practical form longer than six months after the cessation of hostilities. If we could give the feeling that these men are going to be properly looked after, it would be a good thing. In connection with a unit with which I was serving, I remember that three of the men's families were evicted from their houses for lack of payment of rent in 1914, and I know the effect that had; and the effect of the very strong cable that I sent to the Mayor of the town, saying that certain things were going to happen if he did not attend to the matter, and the cable that the Mayor sent back mentioning those three cases put up the morale tremendously.

THE LECTURER: I entirely agree with you. I touched on that, perhaps too lightly, in saying that the man must have confidence that the Government will play fair by him after the war, and with his dependants, and also that he must have confidence in his officer to help him when he can. I also agree with you with regard to the publicity. All those things are a tremendous aid to morale.

COLONEL F. H. SMITH: Have we any liaison between the military side and the civilian side in connection with housing? After the last war many of my young officers and men were hopelessly adrift with landladies at Bexhill and Eastbourne charging two guineas a week for a room and six guineas inclusive, more than the whole of the pension, apart from the children at school. After Mr. Lloyd George's offer of half a million pounds to train thirty thousand men as bricklayers was turned down, these men had to start building their own houses, and each of the officers concerned became his own clerk of works.

THE LECTURER: There is a definite and close liaison. Perhaps it is opportune to say that the Government arrangements are such that the responsibility for the welfare of the soldier after he leaves the Colours is the responsibility of the Ministry of Labour. That does not mean that the Army washes its hands of those men after they have gone.

Through our Welfare organizations and in other ways we are certainly going to do all we can to further their interests. The Secretary of State for War loses no opportunity of bringing the needs of the soldier—both during and after his service—to the notice of his Ministerial colleagues.

CAPTAIN E. ALTHAM, R.N.: Am I not right in thinking (I think you did just touch on it) than an efficient mail service has a very big effect indeed in maintaining morale?

THE LECTURER: Indeed it has.

CAPTAIN ALTHAM: Especially during the anxious times which soldiers have had about their relatives in this country?

THE LECTURER: Certainly. The Adjutant-General has been anxious to remove the rationing of air letters in the case of men overseas, and shortly those letters are to be unrationed in number. Also I hope that in the very near future all first-class mail for serving men will be transported by air. That will make a great deal of difference from the point of view of speed, and enable a far closer touch between soldiers and their families to be maintained.

LIEUTENANT-COLONEL A. E. P. BRIDGE: Has the Lecturer taken up the matter of overseas settlement? The Minister of State at Cairo is inundated at the present time with interrogations regarding the prospects of settlement in the Colonies.

THE LECTURER: The whole question of emigration after the war is under discussion by the Government, but it must depend on the policies of the Colonial and Dominion Governments concerned. It is a question of what their absorptive capacities are, and the matter is under discussion with them.

CAPTAIN H. F. NALDER, R.N.: I should like to go back to our definition again. When we say that a unit has become demoralized we mean, I think, that it has lost its power to act. It may lose its power to act by the loss of its leader or through lack of food or water or any other cause, but that is what I think we mean by demoralized.

THE LECTURER: I think that the morale aspect is represented by the loss of the will to act. If a unit has lost all its ammunition and its guns, it has probably lost its power to act, but it does not follow that the unit is demoralized.

CAPTAIN NALDER: We are only talking about the man-power side of the matter. If one hundred men together are demoralized they cease to have any power to act as a unit together.

THE LECTURER: They have lost cohesion and the spirit to get the job done.

CAPTAIN NALDER: You would be inclined not to say that it was loss of power to act?

THE LECTURER: I would say they still have the power to act, but lack the will to use that power.

CAPTAIN NALDER: Another question I should like to ask is this: Do you think that efficiency is contained in morale or that it should be considered as a thing apart?

THE LECTURER: I think it is linked with morale. I do not think a unit can be efficient unless its morale is high—nor that a unit can have high morale if it is inefficient.

CAPTAIN NALDER: One final question. If we take the three factors of discipline, efficiency and welfare, I think it is rather interesting to consider in what order they should be put as a basis for creating morale. I think myself it should be discipline first, as the foundation of the whole thing, the relation between leader and led; then efficiency, and welfare last.

THE LECTURER: I should regard all three as of equal importance. They are like the legs of a three-legged stool.

MAJOR C. H. B. PRIDHAM: Might I suggest one factor which has not been mentioned? Perhaps it applies rather more to peace-time soldiering than to war-time, but even in war-time it is a factor, I believe; that is, the importance of regimental officers playing outdoor games with their men.

THE LECTURER: I agree. It is very important indeed that the officers should share in all the sports of the men.

COLONEL F. H. SMITH: I should like to ask whether the Press and the B.B.C. are going to assist in making the public know more about the campaign in the Far East.

THE LECTURER: I must not answer for the Press or the B.B.C., but I think you may take it that both are going to do so. It is fair to remember that, up to a point, the Press are the servants of the public, I suppose, and they have got to give the public what it wants. As long as the central vortex of the war has been in Europe it has been difficult for the Press to give prominence to Far Eastern news. The tendency will swing the other way soon, and it is beginning to do so already. The B.B.C. have in fact stepped up their broadcasts about the Far East something like three or four times in the last three months compared with what they used to be. I am not suggesting that it is sufficient now, and I am quite sure the B.B.C. do not think it is, but it is becoming increasingly prominent in their programmes.

CAPTAIN ALTHAM: That works both ways. The public are largely interested in what they are given to be interested in by the Press and by the B.B.C.

THE LECTURER: Up to a point that is perfectly true, but the majority of people have their relations fighting in Europe at the moment, and I think it is a little more than the sheep being led by the shepherd. The focus is in Europe now, but the focus will alter; there is no doubt about that.

COLONEL F. H. SMITH: The point I really wanted to make was that it seems fairly obvious that the majority of the people who are fighting now in Europe will have to be transferred to the Far East, and the British public still do not realize what is going on there at all.

THE LECTURER: That is very true, but that is being dealt with.

DIVISIONAL OFFICER STENNING, N.F.S.: As a member of a Service which is so young by comparison with the others represented here that it can hardly be said to be out of its cradle yet, I should like to say that we do feel very privileged at having been allowed to attend this discussion.

I have some diffidence in speaking here, but I did feel how very apt to our Service was what the Lecturer said regarding the maintenance of morale at times when fighting is not going on. Since the heavy raiding ceased, the greatest problem which has confronted our Service at all its stations has been the maintenance of morale when the men have no fire-fighting to do.

THE LECTURER: I can well realize that.

THE CHAIRMAN

The importance of morale increases with every year of the War. One of the greatest problems with which we are faced in the Army at present is the length of time that we have to keep a soldier serving overseas. The reason for that, of course, is shortage of man-power. As the War goes on the soldier is turning his thoughts more and more to the future and wondering what is going to happen to him in the way of employment, housing and so forth after the War. We have to obtain the assistance of all the other Government Departments to assist our work in this connection. For instance, we are trying to get civilian lecturers overseas to tell the soldier about post-war problems. The demand for them is very great.

As to regimental tradition, which, in spite of everything that is said about us, we in the War Office consider a vital factor in morale, the reason why we cannot do all we should like to is again the lack of man-power. I will give you one example of the difficulty of keeping men in the same regiments. When we were fighting in the Middle East it took about four months or five months to get a man from his depot in this country into a unit in the Middle East. A month ahead of that the overseas forces

had to put in their bids for the men. They bid for a convoy, so many men of one unit and so many men of another unit. Those men were prepared and sent out according to the bid, but when they arrived in that theatre it was quite possible that the unit might have moved elsewhere; or the fighting had borne heavily on another unit and the men had to be used where the operational necessity arose. In this war, as the tactics change, we have continually changed our strength from one arm to another. You can see that exemplified in the Mediterranean, where we had many A.A. and coast defence gunners at one time; they are not required as gunners now, but as infantry, armour, etc., in Italy. So we have had to transfer the gunners to infantry and other arms. That is happening all over the world and is bound to happen if spare men are not available (they never are in a great war) and if one is keeping the Army in line with the operational necessity of the time.

I think you will agree with me that the Lecturer has dealt with a difficult subject very clearly. I know everyone in this room could go on talking for hours on the subject of what morale is and what affects it. Everything affects it. The whole of life affects it. I thank the Lecturer on your behalf.

CAPTAIN E. ALTHAM, R.N.: It is my pleasant duty to propose the vote of thanks to the Chairman.

I am sure you will agree that we are very much indebted to the Adjutant-General for having enabled us to have this very admirable Lecture given by such an able Lecturer. I also hope that you will agree with me that this Institution is a particularly suitable place for this Lecture.

The Lecturer and the Chairman have both alluded to three great factors in Morale: Leadership, Training and Tradition. Between the covers of the thousands of volumes which surround you, and which I am sure Members will be glad to see back here after five years absence,[1] there are the records and the wherewithal for the study of the greatest Leaders there have ever been, and of every sort and kind of Training.

As to Traditions, this Institution is, of course, the temple of the Traditions of all three Services, as it is a monument to the Morale of those Services.

Not only is it particularly appropriate that we should have this Lecture here, but it is even more so that we should have to preside the Adjutant-General, and you will wish to join me, I hope, in a very warm vote of thanks to General Sir Ronald Adam for sparing the time to come here this afternoon. (The vote of thanks was carried by acclamation.)

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[1] The Lecture was held in the Library, in which the books had just been replaced.—EDITOR.

WAR IN THE PACIFIC

By WILLIAM COURTENAY, M.M.

On Wednesday, 24th January, 1945, at 3 p.m.

GENERAL SIR WALTER KIRKE, G.C.B., C.M.G., D.S.O., in the Chair.

THE CHAIRMAN, on introducing Mr. William Courtenay, said he was the War Correspondent of the *Daily Sketch* and other Kemsley newspapers in the Far East. He served in the British Army in the last war and was awarded the Military Medal as a private soldier in the Cheshire Regiment. In the later years of the War he was in the R.F.C. and the R.A.F., so that he knew quite a lot about war. During this War he was with the Australians in all the operations in New Guinea, including the defence of Port Moresby and the advance over the Owen Stanley mountains to the North shores. This last year he was attached to the American Forces and he had taken part in no less than eight landings.

LECTURE

I AM very grateful to the Institution for giving me this opportunity of bringing you an account of the work of our Allied forces under General MacArthur and Admiral Nimitz in the Pacific Ocean. I propose to give you a broad review of the operations during the last three years up to the landing in the Philippines; then I will show you some coloured films of some of these operations.

First of all, you will recall how the Japanese blow at Pearl Harbour, on 7th December, 1941, had as part of its design the intention to sprawl like a great volcanic eruption as far as possible throughout the Pacific, so that by the time that both the British Empire forces and those of the United States could be on their feet to meet the menace, the Japanese would hold so many strategic bases at such a distance from their homeland that it would be out of reach of any strategic bombing, and so that during the months or years which might follow they could safely build up their war industries to a condition commensurate with the task which might lie before them. There were, of course, many other aims, but in so far as that one was concerned they were successful until very recent months. Recently, however, we have secured bases at places like Saipan and Guam in the Marianas within bombing range of Japan, and Super-Fortresses, each carrying six tons of bombs on a mission of that nature, are now beginning to attack Japanese war industries on a pattern somewhat similar to that in Europe.

THE THREAT TO AUSTRALIA

The limits of the Japanese advance were not to be fixed for the first seven or eight months of the Pacific war, and throughout those months they held the initiative pretty well. They sprawled from Formosa and Japan right through the Philippines into Malaya, Singapore, Sumatra, Java, Borneo, the Celebes, the Halmaheras, Dutch New Guinea, British New Guinea and Papua. They took the Admiralty Islands, then New Britain, New Ireland, and the Solomon Islands. They owned the Caroline Islands and they took Guam in the Marianas from the Americans. The Marshall Islands were already theirs. They sprawled right down into the British Gilbert Islands, threatening the Ellice group and Midway Island. All that was accomplished in the first three or four months of the campaign by rapidly exploiting the surprise which followed the treachery of Pearl Harbour. Singapore fell on 15th February, 1942; four days later Darwin in Northern Australia was being bombed, and by early March the Japanese had got into British New Guinea at Lae and Salamaua and they were beginning to find a way across the Markham Valley to the South side of Papua, with the object of

taking Port Moresby—the only port on the South coast of New Guinea. Port Moresby was vital to their plan for the invasion of Australia. For this they had prepared a great army of 250,000 men, nearly all of whom have now perished or are in the process of perishing in the jungles of New Guinea and in the Solomons; certainly none of them will get home again. Their intention was to seize Port Moresby and to use it as an assembly ground to jump off into Queensland. Darwin was no good to them because it led nowhere: apart from a light railway running South for a short distance there was really nothing but bush for nearly a thousand miles all the way through the heart of Australia to Alice Springs in the centre—the place to which the Government of the northern territory retired after the bombing of Darwin in February, 1942.

The Australian engineers and the American engineers, who were amongst the first American troops to arrive in Australia, were given ninety days to build a great strategic highway through the bush from Alice Springs due North to Darwin. By then we had lost control of the sea communications, and the Japanese had all the islands and bases round North Australia. We could only reach Darwin by road if there were a road, and we had to build one. That great strategic highway was completed in eighty-eight days: it is one of the finest things that has been done in Australia and it will have great economic value after the War. Before that, little had been along this trail since the party which laid the overland telegraph in 1874. To-day, on that great strategic highway there are very often three huge convoys of fifty trucks each. They start North from Alice Springs each morning as regularly as trains, and carry supplies up to Darwin. On the return journey the smaller vehicles are carried on the backs of the larger ones, thereby saving half the fuel and tyres.

The object of the Japanese was to get to the Queensland coast and, in order to do so, the capture of Port Moresby was of vital importance. They made three distinct attempts to take that port in the early months of 1942. First they tried to get down the Markham Valley, but they were swamped by the rains and attacked by the Australian aeroplanes and by the first units of the American Air Corps. Although many of the Allies' aircraft were inferior in some respects to the Japanese Zero in manœuvrability and in ceiling particularly, nevertheless we won local command of the air over that area and that attempt was frustrated. Then there was the battle of the Coral Sea when the Japanese tried to seize Port Moresby and even Brisbane from the sea. The American naval command knew that they were coming and naval airmen destroyed part of the fleet. The victory of the Coral Sea early in May, 1942, removed from Australia the direct threat of invasion. Their main thrust was, however, that which they made across the Owen Stanley mountains. Landing at the end of July on the North coast of Papua, they set out across the mountain trail through Kokoda—the Government station in the mountains, for Port Moresby.

Up to July or August, 1942, the initiative was with the enemy, as far as land operations were concerned. The seas lay uncovered and there was no naval help for the Allies' armies in the South-West Pacific area. The most that could be done was to harass his supply lines and that yielded rich dividends from the very beginning. American submarines went up to the Philippines and even into Japanese waters. The Allied Air Force was gradually building up, and we were harassing the enemy transports coming from Rabaul to Buna and the ships passing through the Vitiaz Straits to Lae and Salamaua. We began to shatter his supply line at sea so that the time was soon to come, even before the end of 1942, when the Japanese could no longer risk transports in these waters; they had to rely on

barges travelling through the night for the Philippines along the Dutch and British New Guinea coasts and hiding by day. They did, however, land in some strength at the end of July, 1942, and they began this march over the Owen Stanley mountains.

By about the middle of September, 1942, which was, I think, our most anxious period, they had crossed nearly all the great razor backs, rising to over 7,000 feet, and they had reached a point within twenty miles of Port Moresby. It had meant marching largely in twilight and there were no tracks or trails—only hunting pads. Where even the mule could not march the soldier had to carry everything on his back. Now it seemed that we might have to fight another perimeter engagement only to be flung into the sea at the end of it, as had been happening all the way back from Singapore.

FAILURE OF THE JAPANESE

Then a strange thing happened: we found the Japanese dying on the trail. They were suffering from dysentery, starvation and food poisoning—they had not been trained to live in the jungle as the Australian troops were being trained. The initiative passed to the Australian infantry. By this time two divisions of the Australian Imperial Forces, which had fought so well under Wavell in the Middle East, had come back to Australia. They were the 6th and 7th Divisions and they were followed later by the 9th Division. The 6th and 7th Divisions had taken a hurried conversion course from desert warfare to its very opposite—fighting in the close country of the jungle. Units from them moved into Port Moresby and proceeded to attack the demoralized Japanese and to pursue them until eventually they were back on the North coast of Papua at Buna and Gona, from where by a joint Australian and American infantry effort in January, 1943, they were flung into the sea.

The Japanese failed on that trail and we succeeded, although faced with precisely the same conditions, because of the very novel and unorthodox use which we made of air power. Command of the air in this kind of jungle warfare is just as important as it is in any other kind of operations. The Japanese were not able to secure that local command of the air which was so essential to protect their troops. They could not even protect their supply route from Rabaul to New Guinea, and they could not protect their bases at Buna and Gona. Therefore they violated an old principle by trying to operate from a base which was not in itself secure. We learnt in later months from some of the prisoners that they had relied on being able to eat our rations when they reached Port Moresby.

The distance from Buna to Port Moresby is only about 100 miles as the crow flies, but a march must be reckoned, not by the number of miles to be covered but by the time that it will take, and it took us six weeks. At this time we were very short of aircraft of all classes, even transports. Air liners had to be taken off the air routes in Australia, filled with ammunition, and flown to Port Moresby,[1] where it was transferred into the fighters. The fighters flew over the mountains and fired about 30,000 rounds of cannon-firing ammunition every morning. The enemy could not be seen in the dense forest, but we knew the tracks which he was using and that his bivouac areas lay along the trail. Gradually his supply system was shattered, and the longer his supply route grew, the more attenuated it became, and the more vulnerable. So he marched on—not to victory but to death, and he never reached Port Moresby.

[1] They had to fly from Brisbane—about 1,500 miles over the Coral Sea.

ALLIES GAIN THE INITIATIVE

When the initiative had passed to us, we had exactly the same problem of supplying the troops marching over that mountain trail. The first essential was that we should have command of the air over our base. Then, as I have said, we used the liners taken off the civil air routes, and these, supplemented by a few Douglas transport planes—C47 as we called the carrying version of the DC3, ferried supplies. There was nowhere to land in those mountain areas, but here and there on the sides of the razor backs, by a sort of fortuitous geographical trick, there were open patches of jungle grass about the size of a village green. The Army Service Corps organized these little places into supply-dropping grounds, and the American pilots, flying the unarmed transport aircraft under the canopy of the fighters keeping command of the air, were able to wind their way through tortuous valleys and drop supplies to us as we marched along these mountain trails. There were no parachutes for most of the supplies, and about 80 per cent. of them fell into the jungle and was never recovered; but the other 20 per cent. fell in the target area and that succoured the men on the march. So complete was command of the air that throughout the six weeks of the march I never saw a single Zero. We were on iron rations, of course; the aircraft could carry only blankets, medical supplies, ammunition and more iron rations. Even the wounded had to walk back or be carried by native bearers—Papuan boys, ten men to a stretcher—over the mountains and the unbridged creeks to get back to safety.

By these means we succeeded in taking Kokoda early in November, 1942. Then began the march down the reverse slopes to Buna and Gona where an American force was flown in and the Australians and the Americans pushed the Japs into the sea. But it was that march over the Owen Stanley mountains which finally saved Port Moresby, and therefore saved Australia from invasion. It was achieved entirely by Australian infantry.

Hardly had those operations ended before, early in 1943, MacArthur and Blamey—the Australian commander, were faced with another campaign of almost equal dimensions on the same coast. There are a great many airfields up and down New Guinea. They are only small landing grounds built by the gold people before the War to carry gold to Port Moresby, but they became of strategic importance when the War broke out, and we were anxious to hold them. There was one at Wau, right in the heart of the New Guinea goldfields. Some Australian Commandos had been landed there as early as June, 1942, in order to harass the Japanese who were along the trails leading to Lae and Salamaua. There is no trail from Port Moresby to Wau, which is distant about 200 miles. The only trail to Wau runs from Salamaua and through the Owen Stanley mountains. That trail was discovered by the early goldfield seekers in 1920. The enemy, having control of Lae and Salamaua, sent a whole regiment of about 3,300 strong in January, 1943, to attack those Australians who by then were reduced to about 300 rather ragged, malarial, bearded Commandos. The Australians harassed the Japanese all the way to Wau; but finally they reached the mountainous approaches and began to march down to seize the landing ground. That was in January, 1943. MacArthur then rushed up a battalion of 600 Australians, flying them in transports to Wau, where they manned the defences of tracks leading down to Wau, while about 80 of them were posted to defend the landing ground. But the Japanese discovered one mountain track, the existence of which we did not know; they got in behind the Australians and over 3,000 of them began marching down to the landing ground where there was only the guard of eighty. MacArthur rushed up two more battalions, intending to fly them into Wau; but as luck would have it bad weather

settled over the whole area. For seven days the situation at Wau deteriorated and the Japanese were within a mile with the Australians making bayonet charges in a last stand, when on the seventh day, about 29th January, the weather cleared and seventy Douglas transports flew in 1,200 men. The American pilots, with supreme contempt for the Japanese, who were now encircling the landing ground strafing the aeroplanes as they came in, ran the service to a timetable and unloaded the troops. Although the landing ground was only 1,000 yards long and 3,000 feet up, with one end 400 feet higher than the other, in a thousand landings throughout the campaign only two transports came to grief. It was never meant for anything but Gypsy Moths. Next day 25-pdr.'s were flown in and went into action within thirty minutes of their being landed. It was the guns which saved the day and slaughtered one-third to a quarter of the whole Japanese force. They never took the Wau landing ground.

Now the tide turned. The enemy fell back. By August, 1943, we stood outside Salamaua and we could see the sea once again on the North coast of New Guinea. Then MacArthur started that daring encircling movement round Lae, while he held the Japanese before Salamaua. That involved use of American paratroops. The 9th Division of the Australian Imperial Forces had joined up by now and they began to move up in barges to cut the enemy's supply line along the coast through Lae, across the mouth of the Markham River to Salamaua. If Lae was taken, Salamaua on the other side of the river would automatically fall. By this time we had some naval help. Once the Navy began to arrive with amphibious equipment the whole character of this campaign began to change. The tempo of the battle improved. With naval help it was no longer necessary to march over mountains; we could raid the beaches where the Japanese had the bulk of their installations, clean them up and gradually occupy the island. At the beginning of September, 1943, with this naval help, we were able to land the 9th Division above Lae to cut the enemy's supply line. Other Australian forces, which had landed at an airfield North of Wau, marched to the Markham River, and on 3rd. September they crossed the river where about 1,600 American paratroops, flown out of Port Moresby, were due to land. I had marched to Salamaua and returning to Port Moresby flew with the paratroops. We came in behind the Japanese lines and dropped these 1,600 men at Nadzar airfield about twenty miles from Lae. There was no enemy interference. We plastered the airfields over a large area. We took Lae and Salamaua; Finchhafen fell later. This meant that by the end of 1943 MacArthur had burst the fetters which had bound him to the Australian mainland. We were now on the North Guinea coast and in a position to take the war out of New Guinea on a much wider scale.

THE ADVANCE FROM NEW GUINEA

That brings us to 1944. As MacArthur conceived it, the plan was not to inch his way through jungles yard by yard or hop from island to island through a myriad atolls and island groups, but rather to make a series of what one might call kangaroo leaps of a few hundred miles at a time limitated by the tactical radius of land-based fighters. If we wanted to jump further than that we should have to rely on carrier-borne aircraft—if we could get the carriers. He aimed at seizing places of value to him in the long westerly march towards the Philippines, leaving the rest of the Japanese behind the lines, strategically isolated and impotent. This would avoid making frontal attacks at those places where the enemy was established in strength, where there might be no prospect of securing a tactical surprise, and where we might suffer heavy casualties.

The first leap was to the Admiralty Islands, and this was made on 28th February, 1944, when the Texas Cavalry were landed there. At this point there comes into the picture that co-operation and co-ordination which had been established between the United States Navy in the Central Pacific under Admiral Nimitz and General MacArthur's land forces in the South-West Pacific. At the end of January, 1944, Admiral Nimitz heavily bombarded Truk—the big enemy naval base in the Marianas, about 800 miles North of the Admiralty Islands. That put Truk out of business, and it has played no real part in the fighting since. It also immobilized the Japanese navy cover, particularly the installations, and it knocked out about 200 enemy aircraft. At the same time the Australian and American bomber pilots began to plaster the airfields at Rabaul in New Britain, at Wewak along the the coast of British New Guinea, and in Hollandia in Dutch New Guinea—all of them places within 200 or 300 miles from the Admiralty Islands. The Japanese might have brought up aircraft to converge on the Admiralty Islands from all these places when our task force went in, but so well were their airfields plastered that when we landed not a single Japanese aircraft was able to get off the ground.

Before the end of March we had seized the Admiralty Islands. That was a leap northward of about 450 miles from New Guinea, and the Japanese knew that it meant that their General Headquarters at Rabaul—only an hour's flight from the Admiralty Islands—would be untenable. They decided to move their G.H.Q. westward to Hollandia. MacArthur divined this intention and he forestalled them, for while the campaign was still progressing in the Admiralty Islands he decided to leap forward from the Markham Valley about 600 miles into Hollandia, by-passing all the Japanese along the intervening coast. So on 22nd April we landed there and took the place with only fifty casualties. The enemy thought we were going to inch our way along the coast from the Finchafen area and moved 3,000 troops eastward to meet this threat; but we struck 600 miles to the westward and when we got to Hollandia there were only about 500 Japanese building three landing grounds, which we occupied together with the magnificent harbour of Humboldt Bay.

During May and June we began to seize other islands which gave us strategical control over the rest of Dutch New Guinea. By August we could say that the whole territory was, strategically speaking, in our hands, even if thousands of the enemy were hamstrung along the line running further eastwards through Wewak and in Rabaul, New Ireland, and Bougainville.

Our next blow fell on 15th September, when MacArthur struck at Morotai, the northern island of the Halmaheras. Here again the Japanese were completely out-manœuvred. They thought that our next objective would be the main island where they had a garrison of about 30,000 men, instead of which MacArthur went for Morotai where there were only about 200 to 500. We took the island with only five casualties, and the garrison in the main Halmaheras was simply left stranded: they could not get out and nothing could get in, for we had taken more airfields with the result that they could be neither reinforced nor rescued. The jungle which they expected to be their ally turned against them and is beginning to envelop them. There they have been left and no doubt in due course we shall be able to say to our Dutch friends: "That is your country. We will give you the bulldozers and all the other things you need to clean up the Halmaheras."

A GREAT NAVAL ACHIEVEMENT

That date—15th September, is a very important one, because it may be said that on it the campaign for the Philippines began. The landing in Morotai brought us within 350 miles of the southern island of the Philippines—Mindanao, and therefore within tactical radius for fighters. On 15th September another important

thing happened; and here we must recall what Admiral Nimitz had been doing. The United States Navy had been faced with a task which I suppose has had no equal in the whole history of naval warfare. Admiral Nimitz had to move from Pearl Harbour, in the Hawaiian Group, nearly 5,000 miles across the Pacific to the Philippines without a single modern base in between. He was able to do this because he had been provided with special base and supply ships. Each class of warship—battleship, cruiser, destroyer, aircraft-carrier and submarine, had a special type of supply and repair ship—vessels costing as much as a battleship and taking as long to build. They are floating workshops with foundries, lathes and benches and carrying hundreds of skilled workers. They can undertake all repairs, including under-water welding. If a ship falls out, it is repaired and restored to duty.

This great move in less than twelve months was a remarkable achievement, all the more so because it was only in November, 1943, that the U.S. Navy was able to take the initiative in their first stride to seize Tarawa in the Gilbert Islands—the area which marked the limit of the Japanese progress through the Pacific. From November, 1943, to September, 1944, their progress was astonishing. The occupation of the Gilbert Islands relieved the Ellice Islands from further risks. The danger to bombing of Canton Island in the Phœnix group was also removed. Half the Marshall Islands were taken—the half where the rain falls; the Japanese were left in the other half where it never falls. By-passing the Caroline Islands, we took the Marianas. On 15th September, 1944, on the same day and at the same hour as MacArthur struck at Morotai, Admiral Nimitz struck at the Palau Islands. So the long trek through the islands and atolls of the Pacific ended with a cordon round the Philippines: to the East were the Allied forces based on the Palau Islands—550 miles from them; to the South were those in Morotai—only 350 miles away.

THE LANDING IN THE PHILIPPINES

So all was ready for the assault on Leyte in the centre of the Philippines. This began on 20th October, and was the last campaign in which I took part before this visit home. Here again the Japanese were surprised. They expected MacArthur to go for Mindanao. The bombing of the airfields there led them to believe that that was what would be done. But he went into Leyte. From there aircraft could exercise strategic control of Mindanao to the South and Luzon to the North; fighters had only to fly half their tactical radius in each direction. So the way was paved for the landing in Luzon on 6th January.

Throughout all these operations the unarmed air-liner has played a very important part in its role as the common carrier. It has been the Douglas transport aircraft which have linked the islands together as they were taken. It provided air routes as we moved forward. It kept the necessary lines of supply and communication open when, in the beginning, the seas were uncovered. It has provided us with supplies over the mountains and through the jungles. As soon as a base was taken and fighters were there to give cover, in came the unarmed transports to open up a new supply route. It has been those transport aircraft as much as any other factor which has enabled us to move so rapidly and with such low cost through the Pacific. It has been the lack of them which has been the principal cause of the failure of the Japanese.

THE ASSAULTS

Landings in the Pacific islands are now organized something like a regatta. On the morning of "D" Day the vast convoys with their naval escorts arrive in the harbour or bay and cast anchor; in practice this is often a misnomer because the depth may be up to 400 fathoms—as at the Philippines, in which case the ships

heave to in the " transport area " at dawn, a few miles offshore. The barges and assault craft carried on board the big troop-laden liners are then lowered and brought alongside on the side away from the enemy. Troops clamber over the rope nets into them and they move off, so that if the big vessels are attacked, at least the barges are clear.

The naval and air bombardments commence. At Leyte, for instance, they began at 9 a.m. because it was intended to land 100,000 men in thirty minutes on a thirty-mile frontage at 10 a.m. This bombardment is based on good photographic and aerial reconnaissance and other useful intelligence. The enemy's coastal batteries are engaged and silenced ; his 6 in. and 8 in. naval guns used for defending beaches are knocked out ; and all his defence installations levelled. The aim is to drive him back from the beaches into the swamps, jungle, and hills so that the first waves of assault craft may reach the beaches intact.

While the naval bombardment is going on, the troops have a ringside seat at the show. The seas are blue ; the skies are blue ; the water is generally calm ; few are seasick ; the sun is shining ; the gleaming coral beaches beckon ; and the waving cocoanut palm trees can easily be discerned ashore. In most cases the scene is somewhat idyllic because we have the air and sea to ourselves and there is little enemy air activity. At Leyte only a solitary reconnaissance aircraft emerged to spot our vast convoys, but no bombers followed for the simple reason that for a month beforehand the fleets had been bombarding the Japanese airfields and installations in Formosa and the Philippines : they destroyed 2,000 enemy aircraft in the month before " D " Day.

The first assault wave then forms up on a starting line either side of the control ships near the beaches. Up goes a flag marked " One "—the signal for the first assault wave to charge the beaches. Similar signals follow, and each succeeding wave sets off so that all the twenty or more waves in lines abreast move through the smooth waters towards the beaches, like a division of Guards on parade—a most impressive sight against its tropical background.

The combined naval and air bombardment continues while the barge waves are moving in. Their white wakes look like the nodding plumes of horsemen riding to a tournament. For the final ten minutes of the bombardment as the first barge wave approaches the beaches, all the guns of all the ships " turn on the heat " ; aircraft from bases a thousand miles away, perhaps, arrive to split second timing to join in ; the rocket ships on the flanks open fire ; and this great bombardment continues until the first barge wave is within two minutes' ride of the beaches. The barrage is then lifted to strike the fleeing enemy, and in that two minutes the assault waves must hit the beach, disembark, form a battle line, and clear the beaches for succeeding waves to follow.

In half an hour all the vast force will have landed, and behind the last line of assault waves come the majestic slow-moving L.S.T.'s which commence unloading their bulldozers, tractors, graders, guns and tanks. Before the afternoon of " D " day in every campaign, we had secured our beaches. They might still be subject to mortar and sniper fire for three days or so ; but within a couple of days the battle line is firmly formed with its flanks secured and the army is established on the new island without risk of being pushed back into the sea.

(*A film was then shown.*)

THE CHAIRMAN

I think that it only remains for me to express our gratitude to Mr. Courtenay for his most interesting lecture. He has given us a good insight into the operations in the Pacific, both of the Australians and the Americans. I am quite sure that when he returns there and starts sending his despatches home we shall read them with even more interest in the future than we have done in the past. I ask you to show your appreciation in the usual way. (*Applause.*)

THE NAVY'S PART IN COMBINED OPERATIONS

By REAR-ADMIRAL T. H. TROUBRIDGE, D.S.O.

Wednesday, 3rd January, 1945, at 3 p.m.

VICE-ADMIRAL SIR GEOFFREY BLAKE, K.C.B., D.S.O., in the Chair

THE CHAIRMAN, on introducing the Lecturer, said that Rear-Admiral Troubridge had very definite qualifications to talk on the subject with which he would deal that afternoon. He had followed up this trail of Combined Operations, starting at Diego Suarez and the capture of Madagascar and then going up through the Mediterranean, North Africa, Sicily and Italy, where he had been under the command of Admiral Sir Bertram Ramsay, whose tragic death they so much deplored. He had also been engaged in the operations at Elba, and last August took part, as Commander of the Escort Carriers, in the very successful landings on the South Coast of France.

His experiences were, therefore, very wide and varied, and he would say what he could; but there was that difficult question of security, which always entered into these lectures in war-time, and because of that he might be handicapped to a certain extent.

LECTURE

THE Naval aspect of Combined Operations is an extensive subject to compress into an afternoon's lecture; but whether the operation entails landing a number of divisions—when it assumes the proportion of an invasion, or whether it is on a smaller scale—such for instance as the operations against Madagascar or Anzio, the problems facing a Naval Force Commander are much the same and from the point of view of the individual naval officers and men in the landing craft and beach parties, almost identical. So this afternoon I intend to draw attention to some of the problems with which the Naval Force Commander of a Naval Assault Force is confronted in planning and executing a Combined Operation and in the administration of a Naval Assault Force.

My experience is derived from close on two years with Assault Forces overseas. I have no first hand experience of Normandy and can only speak of the problems as they confronted myself. Our organization is continually altering and developing and the technique improving; consequently some details of the organization to which I shall refer may already have been modified and improvements introduced. My only hope is that all the priceless experience that we have gained will not be lost after the War, and that some part of the organization we have so laboriously built up will remain in the post-war Navy.

Success in almost every human endeavour depends upon the production of the preponderating force at the right place at the right time. In this respect Combined Operations differ somewhat from ordinary naval operations because the naval force is spread among a very large number of small units and, moreover, it is essential to success that these arrive at exactly the right place at exactly the right time. The problem is therefore, to quote the words of the Prime Minister, one of "peculiar complexity and hazard."

Owing to the wide dispersion of the naval forces, command must of necessity be more extensively decentralized than is the usual naval practice, and this demands two things, (1) careful preparation and training and (2) perfect communications.

The need for the latter has always been well understood in naval organizations, but only recently with the advent of efficient radio equipment have the extensive demands in Combined Operations been adequately met. Even so, communications still remain a problem requiring the most careful attention since the demand for channels of communication is of necessity limited by the amount of equipment and men to man it that can be accommodated in the ships, particularly the Headquarter Ship.

COMMAND AND TRAINING

With regard to the preparation and training of the personnel of the Naval Force, this raises a number of problems peculiar to Combined Operations since, to mention only one, during the planning stage training may have to proceed at one place whilst as likely as not the Naval Force Commander and his staff are engaged on inter-Service planning at another. Moreover the bulk of the naval forces required to support the operation is, unlike the Army, engaged up to the last moment on its ordinary naval occasions—convoy escorts, minesweeping, and the like, from which ships can ill be spared for training in the specialized roles that they may be called upon to play on D-Day.

In the early days of Combined Operations the training of the purely Combined Operations naval forces, *i.e.*, landing craft crews, naval beach parties, etc., was under the Chief of Combined Operations, whilst the Naval Force Commander appointed to command in the operation was, until the final grand rehearsal, solely concerned with planning. He thus met his force for the first time just prior to the operation. This was my experience in the original North African Landings where I was appointed as Naval Commander of the Centre Naval Task Force at Oran. Being at that time, in common with the majority of my staff and also the American army whom I had to land, new to Combined Operations, I was in the one month available immersed in the detailed planning and did not leave London until some ten days before we sailed. Consequently, I did not make the acquaintance of my command until just before the operation. This system, though admittedly for various reasons inevitable in the early days, is quite obviously fundamentally unsound. Command, by definition, involves complete responsibility for administration and training as well as operational direction of the forces under the orders of the Commander, and although Combined Operations call for the temporary attachment of a large number of units from other commands to the Naval Force Commander, the hard core of his force, namely that part of it comprising the assault elements, should be under his command in a manner similar to any other naval organization.

The problem of exercising command whilst absent from the force is now met by the appointment of fully responsible deputies both for the Naval Force Commander and his immediate subordinates. This view was in principle accepted after the North African landings and the Naval Force placed under my orders for the landing in Sicily was trained and administered by myself until the completion of that operation when, for a variety of reasons into which it is not possible to enter here, it was in common with the other Naval Assault Forces disbanded and scattered. Not being in possession of all the facts I have no right to criticize this procedure; I think, however, it is reasonable to say that had any of these forces been kept together and not dispersed after the Sicilian landings, the delay in mounting the next operation at Salerno would not have been so great. The Naval Assault Force, which in the event operated so brilliantly in that operation, was made up of elements of all the Naval Assault Forces which took part in the Sicilian operations, and their gallant

Commander would I feel sure be the first to agree that he was commanding a team of experts rather than an expert team.

From my experience in the business of Combined Operations I am convinced that the proper and most effective method of handling this problem is to create, in every chief Naval Command where Combined Operations may be called for, a Naval Combined Operations Force under a Flag Officer. Where a major combined operation is required it would be necessary to " Clear Lower Deck " and use the entire force and even augment it from outside. For smaller operations it would, to continue the analogy, be sufficient to call upon a Watch or Part of a Watch. The advantage of this system from the point of view of training and administration would be very great and moreover, by creating a standing command and with it a team spirit based on common doctrine, many of the difficulties inherent in last minute improvisation would be eliminated. I shall have more to say of the detailed composition of a Naval Assault Force later and will now turn to the problems that confront the Naval Force Commander when a specific operation has been decided.

As a rule the locality of a Combined Operation will have been selected by the Government or the Supreme Allied Commander of the theatre of war on information derived from an appreciation by the Combined Planning Staff. At this stage the three Force Commanders—Naval, Military and Air—are appointed and, having been briefed, are required to produce their outline plan for approval by the Higher Command. It is of great importance that this procedure should be rigidly adhered to. Any attempt to force the responsible Force Commanders to operate on a plan produced by the Higher Planning Staffs may lead either to last minute changes with consequent delays and interruption of training or worse still to failure. At this stage the predominant partner is the Military Commander since he alone is responsible for fighting the battle ashore and consequently must say where and in what force he wishes the Army to land.

In drawing up the outline plan, the Staffs of the three Commanders must work in the closest touch and preferably under the same roof. As stated above, it is for the soldier to indicate where he wishes to land, his object in the early stages being to secure a beach-head, preferably including a port where the follow-up and supplies may be unloaded. It is reasonable to assume that any port in enemy hands, and indeed the most favourable landing places will be defended and consequently the first phase of the operation may well entail action solely designed to secure these favourable landing places. Every operation is different and it is not possible to particularize, but this much is sure—under modern conditions troops cannot fight effectively without their supporting arms, *i.e.*, guns, armoured fighting vehicles, etc.; consequently, the first essential is to secure beaches where these can be got ashore expeditiously. Depending on the known enemy defences the beaches may be secured by direct assault or by outflanking movements or a combination of the two. Fixed gun defences must be taken out by Commando or airborne landings or neutralised by aerial or sea bombardment or by a combination of all these methods. It is not possible to maintain the tempo of a combined operation whilst the enemy is able to bring directly observed fire on to the beaches and the offshore shipping. It goes without saying, too, that local air supremacy is a vital factor and must be secured if necessary by the added intervention of naval carrier-borne aircraft.

As a rule, in a Combined Operation it is usual to divide the enemy coast line into a number of Areas and these in turn are divided into Sectors. A brigade group, *i.e.*, an infantry brigade to which certain supporting arms have been attached, is allotted

to a Sector, and the Naval Forces in each Sector—known as a Naval Assault Group—are under a Captain, R.N., termed the S.N.O. Landing (S.N.O.L.). Three, or at the most four, Naval Assault Groups make up the Naval Assault Force under the Naval Force Commander, who thus controls three or at the most four Sectors.

When more than one Naval Assault Force is required the operation assumes the proportions of an invasion and superior Naval, Military and Air Commanders are appointed. Under all circumstances the inter-Service link-up presents certain problems, due to the fact that the Army has sometimes one more link in the chain of command than the Navy, thus :—

	Navy.	*Army.*
Force Commander	Flag Officer	Corps
	——	Division
Sector Commander	S.N.O.L.	Brigade

A Division of three brigades will, as a rule, attack on a two-Sector front with one brigade in reserve. If, therefore, the Military Force Commander, who sails in the H.Q. ship, is a Corps Commander, the Divisional Commanders have no precise opposite numbers. One Divisional Commander must either sail in the H.Q. ship with Corps or in a S.N.O.L. H.Q. ship with an assaulting brigade. In either case the Divisional H.Q. competes with the other organization for space, particularly communications space. This inevitably causes congestion and from the Army point of view is unsatisfactory. In practice a compromise can usually be found to work satisfactorily, but it is most important that this aspect of the "set-up" be studied at an early stage of the planning. In passing it may be mentioned that the American practice is to have a Flag Officer working opposite each divisional General in a divisional H.Q. ship. These two officers are responsible for the details of the assault of the regimental combat teams, equivalent to our brigade groups, in their Sectors. They do not employ a S.N.O. Landing exactly as we do. On the other hand the lack of suitably equipped H.Q. ships invariably leads to some doubling up at one level or another.

In my view the most satisfactory arrangement for British forces during the assault is to place the divisional General opposite the S.N.O. Landing, and the Brigade Commander opposite the Deputy S.N.O. Landing, otherwise known as the Principal Beach-Master. Although they are on a different level of rank they are not as a rule much different in age and length of service and can consequently co-operate very effectively.

SURPRISE

Having decided on the exact landing place, which must of course be suitable from the naval as well as the military point of view, the next question to consider will be the exact time. This resolves itself into a question of a day landing or a night landing, which in turn is governed by the extent to which reliance may be placed on exploiting the factor of Surprise and also on the extent of the enemy defences. The question of Surprise will always be debatable, and the longer planning proceeds and details of the operation become familiar to the responsible Force Commanders the less likely does it appear that there can be any surprise whatever. It remains, however, a fact that in every operation in which I personally have taken part the element of Surprise was exploited to a degree which, if not always complete, was sufficient to confer a great advantage on the attacking forces. In fact, experience shows that unless the preliminary moves are ill co-ordinated, it is likely that some measure of tactical surprise will be achieved.

It will probably be found during planning that where reliance is placed on a surprise landing the Army will desire several hours of darkness in which to get the first flights ashore and the first objectives secured. Unless beaches are ideal and good exits from them assured the Navy, whilst agreeable to landing infantry in the dark, prefers daylight for disembarking the all-important supporting arms which the Army will insist must follow closely on the heels of the infantry. I have had experience of most conditions, save for the Normandy landings, where conditions were unique in the sense that our coming was well advertised beforehand and the number of places suitable for landing limited. I consider that a good compromise is reached if the initial landings of the main body take place about an hour before first light. This should enable the infantry of the first flights to secure sufficient ground to prevent the beaches from remaining under observed small arms fire and also allow the beach parties to make preparations for the reception of the supporting arms. The stronger the defences, including as they may well do, anti-tank obstructions and minefields, the later should be the landings. At Oran and Madagascar where Surprise was complete and the defences practically non-existent, " H " hour for the main body was several hours before first light. At Sicily where little reliance, erroneously as it transpired, was placed on Surprise, the landing was timed for two hours before first light, though in the event none of the supporting arms actually got ashore before daylight. I speak of course for my own area. At Anzio, the landing was again timed for two hours before first light, and according to the plan a large quantity of supporting arms carried in DUKWS were expected to follow closely on the heels of the infantry. In the event the difficulty of clearing the beach minefields in the dark prevented any DUKWS from getting inland before daylight.

At Elba I persuaded my French opposite number to land one hour before first light and, although the subsequent landing of the supporting arms was greatly delayed owing to failure to secure the main beach in the initial assault, the one hour of darkness was sufficient for the purpose of making virtually a surprise landing and getting ashore enough forces finally to overcome the enemy's beach defences.

Having decided on the exact landing place or places, and defined the sectors of the landing and also decided the exact time, the actual details of the assault are worked out on the next lower level. The S.N.O.L's working opposite the Divisional and Brigade Commanders prepare the detailed plan for their Sectors, including allocation of the beaches.

NAVAL ASSAULT AND ARMY BEACH GROUPS

A Naval Assault Group ordinarily consists of a squadron of minor landing craft, a Naval Beach Commando, a Beach Signal Section, pontoon working parties for placing pontoons for unloading L.S.T. in shallow water, landing craft recovery units, and possibly other small specialized parties. The whole is commanded by the S.N.O.L. who, during the assault, remains to seaward at the point from which the landing craft are released—called by us the release position or by the Americans the transport area. His representative at the actual assault is the Deputy-S.N.O.L. or Principal Beach-Master—a Commander who may, as I have previously mentioned, work opposite the Commander of the Assaulting Brigade Group.

Recently it has been the practice to embark the D/S.N.O.L. in an L.C.I.(L.) fitted with special communications—called an L.C.H. Wherever he is embarked it is of the utmost importance that the D/S.N.O.L. should be in perfect communication

with S.N.O.L., so that he can report the progress of the assault and thus enable the Divisional Commander to decide where to send in his reserve. The Naval Assault Group is designed to operate three separate beaches, though in practice the number is as a rule limited to two. The jurisdiction of the S.N.O.L. extends from seaward up to the highwater mark. From this point responsibility devolves upon the Army represented by the Commander of the Beach Group. The full title of the second-in-command to S.N.O.L. is D/S.N.O.L.(P.B.M.). The first part of his title indicates his role during the assault, when he works opposite the Commander of the Assaulting Brigade; the second part indicates his later responsibility when ashore, where he works opposite the Commander of the Army Beach Group.

It is of great importance during Combined Operations to emphasize the need for the closest co-operation between the Services. The air, whether Naval or R.A.F., is predominantly both literally and metaphorically on the higher level; but the Navy and Army have opposite numbers at every stage down to the assistant beach-masters who work with Assistant Military Landing Officers on the beaches. The sooner that all of these get on to the "Bert and Dick" basis the better, and this brings me to some remarks on the Beach Group which, though not forming part of a Naval Assault Force, is at the same time, as I have indicated, very closely bound up with it. An Army Beach Group is not a permanent establishment. It comprises essentially a force for local defence of the beaches of the Sector in which it operates both ground defence and A.A. and a number of working parties for unloading stores, besides specialized units such as R.E., R.E.M.E., Provost, etc., anything up to two thousand men or more. Hitherto, our practice has been to form the Beach Group round an infantry battalion, collecting the specialized units for a specific operation. The Beach Group is disbanded immediately the operation is over or even whilst it is still in progress should circumstances necessitate the infantry battalion being withdrawn to provide reinforcements. This happened in my area in Sicily. Consequently the naval and military opposite numbers who have worked in close collaboration for some time and eventually been together through the priceless experience of battle are on conclusion of the operation separated never, except by chance, to meet again.

Apart from the loss of the valuable moral qualities and experience which are developed in a Combined Operation this system has two principal disadvantages. In the first place a Beach Group, particularly those elements working opposite the Navy on the beach, requires extensive training before an operation, the length of time depending upon the degree of opposition to be expected. Training of the naval and military beach parties must be carried out together. This means that having no permanently established Beach Groups a Combined Operation involving any substantial follow-up cannot be laid on by British forces at short notice. In the second place lack of full-time military experts with Combined Operations assault forces means that we are handicapped in developing the technique of landing quantities of bulky supplies over beaches. I am speaking of course in general and do not refer to the Normandy landings where the whole resources of the nation were engaged for many months with one special problem.

The Americans with their greater reserves of manpower have solved the problem by instituting complete amphibious forces which include naval and military personnel who are solely concerned with combined operations and fulfil the functions of our Naval Assault Groups and Army Beach Groups. These, trained and administered as units, are able to put ashore and forward through to the beach-head any troops

irrespective of nationality. Having a permanent establishment they are equipped on a scale which, save in the Normandy operation, is greatly in excess of our own. With our slender reserves of manpower, we cannot keep such forces waiting indefinitely for an action which may come only once a year. The solution in my view is a good British compromise. We should attach to Naval Assault Forces a nucleus of the Beach Group, *i.e.*, specialized troops carrying out the functions of R.E., R.E.M.E.—such as bulldozer and crane drivers, track layers and bridge builders, water-proofing experts and also the often forgotten but most important Provost sections.. The numbers required to complete the establishment, such as A.A. gunners and working parties, could be detailed when a combined operation was ordered. Two hundred men per Assault Group would probably be sufficient, and what better Corps to provide them than the Royal Marines ? It has always seemed odd to me that in all combined operations in which I have taken part the Royal Marine, " soldier and sailor too," was conspicuous by his absence. Although they are now employed in manning landing craft I have always held the view that their duty is on the outside of the boats as a sort of rubbing strake between the Navy and the Army. I am firmly convinced that their many and versatile talents are eminently suited to this role, and the gain in efficiency would be great.

BOMBARDING ORGANIZATION

Having now seen the subordinate Naval and Military Commanders well on the way to working out details of the assault the Naval Force Commander's next pre-occupation is the allocation of bombardment forces. I have found it best to allocate ships and major Landing Craft such as L.C.T.(R.), L.C.G. and L.C.F. required for close support of the landings to individual sectors where they receive their detailed orders from S.N.O.L., and to retain cruisers and above under the direct control of the Naval Force Commander. Naval bombardment, as everyone knows, has proved to be one of the outstanding features of the naval contribution to Combined Operations, and I believe that even the Germans have described it as our most successful secret weapon.

Its efficacy depends principally upon good communications, and the F.O.O., now known I believe as F.O.B., organization originally worked out and sponsored by the Chief of Combined Operations, has on every occasion proved an outstanding success. Bombardment with spotting aircraft with communications on V.H.F. is also exceedingly effective, and I do not think would now be discounted by any soldier. It is, however, of great importance to insist that calls for supporting fire from units ashore are handled through the Support Control Organization in the H.Q. ship, otherwise there is a tendency to waste ammunition and gun life on unsuitable targets. In this connection the allotment of a naval officer, or artillery officer with experience of naval gunfire, to work with the C.R.A. in the Headquarters ashore after the H.Q. ship has departed, is very useful under certain circumstances, such for instance as when the Army is dependent for a prolonged period on naval support fire, as was the case at Anzio.

In the early stages of an assault it is usual to allocate specific targets to individual ships ; spotting aircraft flown from the nearest shore base or from carriers being detailed beforehand in the operational plan. When the Army moves inland it is probable that targets of opportunity will present themselves, and an effective way of dealing with these is to place all bombardment forces, *i.e.*, cruisers and above under a Bombardment Commander, usually the Senior Cruiser Admiral who, working through the Support Control Organization of the H.Q. ship, allocates ships to targets

and makes arrangements for spotting aircraft if required. The advantage of this system is that, whereas in the early stages of the assault each Sector works under its own spotting radio frequencies, later on when the number of targets is reduced air spotting can be handled on a single frequency for the whole area and it is only necessary for the Bombardment Commander to call for a spotting aircraft without having to specify the frequency to which its radio must be tuned. This greatly simplifies the procedure and any simplification in Combined Operations is to be heartily recommended.

AIR ORGANIZATION

I have not hitherto had much to say about the air side of Combined Operations, but this is because I am chiefly concerned with the naval problems. It goes without saying that no Combined Operation is likely to succeed without local air supremacy having first been secured and this involves fighters over the area both day and night.

One of the first requirements in any landing is the procurement of a landing strip ashore, and better still an aerodrome, from which tactical aircraft can operate in close support of ground forces. In order to secure this the Royal Air Force have built up an organization of airfield construction units, including those priceless handmaidens of Combined Operations—the Bulldozers, and what are called R.A.F. Servicing Commandos, which the Navy must put ashore among the highest priority services.

Just as it is usual for the Military Commander at each level to land when his own signals organization is functioning ashore and he is no longer dependent on the shipborne communications to keep in touch with the forward elements of his Command, so the R.A.F. Commander as a rule plans to land when his signals organization is set up ashore. Although I believe the question has not yet been definitely settled I think I am right in saying that it is now generally agreed that where any R.A.F. aircraft participate in a Combined Operation, the Air Force Commander will be an officer of the R.A.F. of equal status to the Force Commanders of the other Services. He controls all aircraft engaged in Army co-operation or defence of the area, whether naval or R.A.F., from the moment that the assault begins.

During the voyage, naval aircraft operating in defence of the convoys are controlled by the Naval Force Commander who alone is responsible for the safe and timely arrival of the forces at their destination.

The Air Force Commander will require a Senior Naval Officer on his staff of the status of Deputy or Assistant Air Force Commander to assist him in detailing the tasks required from carrier-borne aircraft, should such be present. The latter will in all probability be provided by the Escort Carrier Support Force specially formed for this purpose, and consists of fighters and fighter bombers with crews specially trained in all branches of Army Co-operation, including naval bombardment spotting. Experience in the South of France, where some two hundred naval aircraft from the Escort Carrier Support Force participated, indicated the great value of such a force at close call by the Air Force Commander. Contrary to popular anticipation, the Escort Carrier Support Force operated continuously for ten days with a remarkably high record of maintenance and a surprisingly few casualties from landing accidents.

As soon as the Assault Phase is over, which may be taken roughly as the moment the Military Force Commander goes ashore, the Naval Force Commander's task may

be considered at an end and responsibility for the build up devolves upon the Flag or Naval Officer-in-Charge at the captured port. In any event the H.Q. ship, whose extensive communication equipment is no longer needed once the Military and Air Force Commanders have landed, should be withdrawn as soon as possible, as these ships are far too valuable to run the risk of loss by a chance enemy bomb. If necessary for him to remain longer the Naval Force Commander can transfer into a smaller H.Q. ship or even to a L.C.H. I flew my flag in one of the latter for the Elba operation and in spite of inevitable congestion she answered surprisingly well, operating on over twenty channels of communication.

ADMINISTRATION

Before concluding I would just like to say a few words about the all-important question of administration of the personnel under the orders of the Naval Force Commander. As everyone knows, good administration brings with it good discipline and contentment, which are important factors in creating those high moral qualities so essential to a fighting force.

Administration of a Naval Assault Force presents certain peculiar problems. For example, three thousand men under the orders of a Cruiser Admiral are accommodated in perhaps four or five ships. The same number in a Naval Assault Force may be spread over a dozen ships and shore bases and during operations may be scattered in another twenty or thirty ships. Moreover, whilst I commanded a Naval Assault Force, the majority of the permanent ships of my force were under the Red Ensign.

In the early days of the War when the Navy seriously turned to Combined Operations the large number of officers and men entered for this service were placed under the Chief of Combined Operations as an almost separate navy. I am not here to criticize that policy, for which no doubt there were good and sufficient reasons, but there can be no doubt that good order and discipline suffered. A fighting Service is like a tree with its several branches, and the leaves and fruit which may be likened to the men and their weapons. It derives its nourishment from the roots deep down in the soil of the country. It is a mistake, when another branch to the Service is required, to plant an adjoining sapling; much better to graft it on to the good old tree where it will be properly nourished. Happily the Combined Operations branch has now been grafted on to the naval tree and responsibility for it transferred to those experienced horticulturists the Board of Admiralty.

Our chronic shortage of manpower has in the past prevented our adopting the apparently obvious course of placing the L.S.I. (L) under the White Ensign, Although I understand that in future it is intended to adopt this policy, hitherto most of these ships have operated under the Red Ensign. The result has been many anomalies affecting the position of naval assault personnel embarked with their landing craft for months at a time, with the legal status of passengers on a trooping trip. I hope that my representations to modify the present regulations will at any rate succeed in raising the living conditions of the naval assault personnel embarked for any length of time in Red Ensign ships up to man-o'-war standard.

As you are no doubt aware, responsibility for unloading merchant vessels carrying stores—called M/T Store Ships—is for some reason the responsibility of the Army and is undertaken by docks-operating personnel, nominally belonging to the Royal Engineers. When M/T Store Ships are required to accompany an assault force—and this will almost invariably be the case when a long range operation is undertaken—accommodation must be constructed on board for the docks-operating

personnel, army vehicle drivers and naval personnel belonging to the landing craft—possibly three or four L.C.M.s—embarked. The responsibility for victualling these naval ratings is undertaken by the Army, but provision of canteen facilities for the naval men is, if he is wise, one for the Naval Force Commander. The whole question of victualling naval personnel during an assault is one requiring much forethought and organization, particularly if the operation is likely to be protracted—as for instance at Sicily where some of the naval beach parties and L.C.M. flotillas worked for four weeks before being withdrawn.

I noticed when I first became associated with Combined Operations that there was a tendency to foist this responsibility on to the Army; but for many reasons this is unsatisfactory. Your dog is the one you feed!

In Eastern waters the question is complicated by the employment of Asiatics as docks operating personnel, etc. Their religious susceptibilities demand specially fitted latrines and arrangements for cooking food, and such delicacies as Spam and "hot dogs," which are the staple diet of naval personnel in Combined Operations, are in the view of many of them unfit for human consumption: perhaps they are right! But this squeamishness adds to the complications.

In other respects administration of the personnel conforms to normal naval practice, although a good deal more is thrown on the junior officers than in the general naval Service. A flotilla officer, for instance, is required to draw the necessary money and pay his men according to the amounts credited to them in their pay books to the extent of over a hundred men under him in a dozen or so landing craft.

The essential in administering a Naval Assault Force is to institute a proper chain of command from the Admiral down to the latest joined ordinary seaman, and insist on adherence to it. It is surprising how people will run off the lines if they can, but if the machine can be kept on the rails, administration, assuming good organization, will be sound.

I think I have now said enough to give you an idea of some aspects of the naval side of Combined Operations and a few of the problems with which a Naval Force Commander has to deal. Our people, I think it is fair to say, have a peculiar genius for Combined Operations, largely because they call for those qualities of dogged endurance, which has always been a feature of the British infantry and is never more called for than during the two hours or so spent sitting in the bottom of an L.C.A. approaching a hostile shore; and that readiness and resource which we pride ourselves are predominating naval characteristics. If I make no specific mention of the Air Force it is because operations in support of landings from the sea do not differ greatly from other undertakings in so far as that Service is concerned. From the point of view of one who has approached several hostile shores I can say there is no more comforting sight than the wheeling Spitfires overhead.

All operations of war depend for success on high performance on the part of the officers and men engaged, which in turn depends upon careful training, good administration and, on the part of the Staff, the closest attention to detail, and nowhere are these pre-requisites more necessary than in undertakings of the peculiar complexity and hazard of Combined Operations.

DISCUSSION

VICE-ADMIRAL H. T. BAILLIE-GROHMAN: When Admiral Troubridge speaks of the Naval Commander being handed a Plan, does he mean an Appreciation, or does he really mean a Plan?

I have had a little experience on this subject, both in the Middle East where we planned a number of Combined Operations, also when I was Force Commander, training for the Dieppe Raid. I arrived home from the Middle East to become Force Commander at very short notice, and was given a Plan only. On going into matters it was found more destroyers and smoke drifters were wanted and they were asked for. C.C.O. then received a quite justifiable reply from the Admiralty. "Was the Appreciation wrong, or has the intelligence about the enemy changed?" Unfortunately there was no Appreciation behind the Plan, and this proved most awkward when any alterations were required in the Plan.

Would it not perhaps be much more satisfactory for the Force Commander to receive an Appreciation with a paragraph at the end giving an outline Plan. My experience in the Middle East on an Inter-Service Committee which planned several Combined Operations showed that Force Commanders there also preferred an Appreciation to a Plan. Personally, I must say I consider an Appreciation absolutely fundamental.

THE LECTURER: I consider that the three Force Commanders should be handed an Appreciation, but inevitably when the Supreme Allied Commander of the theatre of war tells his joint planners to look into the question of landing somewhere he will want some outlined plan to give an indication of the amount of the forces required because he has in all probability only a limited total strength at his disposal. I entirely agree that this should not be a rigid plan to which the Force Commanders must adhere. They should be told that it is an Appreciation, and a very roughly outlined plan should go with it. They should be asked to draw up a properly detailed Plan and to indicate where the plan they have received needs amending. There has undoubtedly been a tendency in the past to use the original outlined plan as *the* Plan, and that will happen if the Force Commanders are not asked to make out their own Plans.

CAPTAIN E. ALTHAM, R.N.: The Lecturer alluded to the value of spotting by Forward Observation Officers and also from the air, and perhaps we got the impression that they are complementary to each other. In practice, are there not occasions when it is only possible to use observation from the air because the F.O.O's have not been able to land?

THE LECTURER: I should have made that clear. The Forward Observation Officer —or the Forward Officer for Bombardment, as he is now called—is an officer of the Royal Artillery with a naval telegraphist team. He and his party land with a small portable radio set, which is later replaced by a better set. The air spotting is quite different. This is done by the R.A.F. or by naval aircraft if the carriers are present. There is no connection between the F.O.B's and air spotters except that the ships themselves must be able to communicate with the F.O.B. on one frequency, and the aeroplanes on another.

REAR-ADMIRAL H. G. THURSFIELD: I should like to hear something more about the role of the Royal Marines. The Lecturer gave us to understand that he thought certain military formations should properly have been allotted to the Royal Marines. In recent Combined Operations have there been any particular formations in which they have been employed?

THE LECTURER: The Royal Marines have hitherto provided the bulk of the fire support forces close inshore. In one sector in Sicily the beach group was commanded by a Marine Colonel and was formed round a battalion of Marines. I think that more Marines should be used ashore on the dividing line where the Navy meets the Army. It is a big subject and always causes a certain amount of feeling.

LIEUT.-GENERAL SIR T. L. HUNTON, R.M.: In the Mediterranean there was a Marine battalion which formed the core of a beach group. It was a battalion belonging to one of our Naval Base Defence Organizations, then operating in the Mediterranean. In addition to what the Lecturer has mentioned we have Commandos

and other specialized units such as the Armoured Support Group with its tanks which was used on D-day, and other organizations which perhaps I ought not to mention this afternoon.

THE CHAIRMAN

ADMIRAL TROUBRIDGE has given us in a logical sequence the problems which face a Naval Force Commander in these complex Combined Operations. He mentioned how the Naval Forces, particularly in the early days, were scattered immediately after they had carried out operations. As he pointed out, we have always been short—not quite so short now, but still pretty short—of manpower and craft, and directly the business was over they had to be skimmed off and sent on some other operation.

The American Navy, with which I am associated, do not have these problems to such a degree. Their big amphibious forces in the Pacific are self-contained and they remain together.

There is one other point which Admiral Troubridge mentioned which I am inclined to stress. That is, that we must not let the Navy and Merchant Navy drift apart at the end of this war. Everybody was very hot and strong about it at the end of the last war, but we did not keep that close association with the Merchant Navy which is so essential in war-time and which ought to be maintained in peace. On your behalf I should like to thank Admiral Troubridge. (Applause.)

ADMIRAL SIR WILLIAM GOODENOUGH, on rising to propose the vote of thanks to the Chairman, referred to the loss sustained by the Country and the Service through Admiral Ramsay's death. Bertram Ramsay, he said, had shown himself to be not only one of the greatest brains of the Navy, but also a man of great resolution and self-sacrifice.

The vote of thanks was then put and carried by acclamation.

GALLIPOLI AND NORMANDY[1]

By Admiral Sir T. H. Binney, K.C.B., D.S.O.

IT is twenty-nine years ago since the greatest amphibious operation of the last war took place and experiences of that time may not seem important to the present generation; but many older officers have served in both wars and to them it is a matter of much interest and some satisfaction to see in what way their experience and failures have been made use of in the greatest amphibious operation of this war.

The present writer served in one of the bombarding ships during the Gallipoli campaign, and later had exceptional opportunities of studying the operation and digesting the lessons learnt. As a background to this experience imagine the state of affairs on V Beach at Cape Helles at 9 a.m. on 25th April, 1915. A powerful force of heavy ships, including our latest and most modern battleship, H.M.S. "Queen Elizabeth," is lying unmolested within a mile of the beach. The "River Clyde" has been beached in the right place, a party of about 300 soldiers who have succeeded in getting ashore from her are sheltering behind a small sand bank not ten yards from the water's edge, and in the water ahead of the "River Clyde" are visible the bobbing heads of Commander Unwin and his gallant band endeavouring to connect their barges between the ship and the shore with the splash of rifle and machine gun bullets all round them. Immediately one of the party sheltering ashore tries to move he is shot dead; indeed those watching from the sea are in doubt whether a single man of this advanced party is unwounded. And all the time battleships *with much the same weapons as to-day* are endeavouring at short range to blast the Turk from his trenches over-looking the beach with no visible success whatever. It was an unhappy day for the bombarding ships, with a feeling of frustration that their tremendous power could not be made effective, a feeling that they had let the Army down.

It is true that the operation had started badly, for the "Cornwallis" on whom reliance had been placed to bombard as the troops landed had been delayed elsewhere, and the troops had left the "River Clyde" with little naval support. Nevertheless, as was discovered later, the Turkish trenches on V Beach were only lightly held, and the prevalent impression of that long day was enforced admiration for what a few stout-hearted men in prepared positions covering the point of disembarkation could do against naval artillery. Stout-hearted they certainly were, for one battleship alone blasted them with nearly 500 rounds, including fifty of the heaviest calibre at a range of less than 2,000 yards and yet not a single man of that small party behind the sand bank was able to raise his head till darkness fell.

Is it small wonder that most of us came away from Gallipoli with the fixed idea that naval gunfire was of little avail in the support of a landing and that for any successful landing surprise was essential? It was our experience then that led us to condemn the policy which kept large numbers of troops in this country in 1917–18 to repel invasion, and caused us to treat lightly the prospects of Hitler's invaders of 1940 should they have attempted it. But what was wrong with the naval gun-fire on V Beach, and for that matter on all the other beaches that were defended? Generally speaking, our weaknesses can be summed up as unsuitable ammunition and flat trajectories. It should also be added that only one ship was technically equipped for bombarding purposes, *i.e.*, only one ship was fitted with a director.

[1] Written in June, 1944.

Again, in the early days in Gallipoli ships were equipped only with anti-ship ammunition. This defect was later made good and is one that should never recur in any well planned operation.

The flat trajectory was much more serious, for at 2,000 yards nothing which we could do would destroy a trench, and it was galling to see successive rounds missing just short or skimming over the top of the skyline. Our technical equipment was not good enough to enable us to lay miles off the coast and lob shells without risking hitting our own troops. This must have been disappointing to the Army who, later, when their own howitzers got ashore, learnt the value of the close support of troops from an artillery barrage. After the war there were many opportunities of discussing the support of a landing by naval artillery at the various Staff Colleges. Everyone was agreed that what was required was howitzer fire from ships, gunboats or barges. To-day we see the fructification of this policy in the use of every kind of gun and howitzer from landing craft to blast the beaches before H-hour. Is it too much to claim that the seeds of this successful effort were planted on our failure on 25th April, 1915?

After the troops had cleared the beachheads our bombarding efforts were for the most part equally disappointing. Apart from a few high lights when Turkish troops were caught in the open by direct fire, our fire was chiefly directed on gun positions (very easy to silence, but very difficult to hit) and by indirect fire on supposed enemy concentrations some distance in rear. What would we not have given for aircraft spotting, for Artillery officers to help us in the ships, for Forward Observation officers, or for any system of signalling which took less than half an hour to get through? It was some satisfaction that the germs of these desiderata should have been planted on the Peninsula itself when in September, 1923, the Mediterranean fleet made good use of the last fortnight of British occupation by systematically carrying out practice bombardments under realistic conditions. The Gunnery officers of the last war may well salute those of 1944 and congratulate them on their great achievements in Normandy, particularly on the bouquet presented to them by the German High Command when it was stated that their dispositions were controlled by the necessity of avoiding naval gunfire. In our wildest moments we never expected to hear such praise. Their congratulations will be mixed with envy and not a little wonder that technical achievement between the wars should have made possible the accurate control of the fire of so many units using much the same weapons that we struggled to make effective in 1915.

I have stressed our weakness in bombarding technique, for naval and air bombardment is the crux of the matter during the critical time that the Army are helpless in their landing craft, but I have not mentioned the improvement in landing craft themselves. It is unnecessary to stress the difference between the tows of ships' cutters in 1915 and the fast scientific landing craft so energetically produced for the operations of 1944. But apart from all this why was the landing in Normandy a great success, and why was Gallipoli a great failure? I suggest because we have well digested the lessons of the latter. What were these lessons?

First, the Gallipoli expedition was hastily planned: compare the arrival of the force at Mudros with all the transport loaded in the wrong way with the months of detailed planning and the meticulous tactical loading of to-day.

Secondly, we had not learned the value of sea power and the advantage we possessed in being able to transport an army to an entirely new theatre of war in which the enemy was weak. We were dominated by what have been called "Westerners": Lord Kitchener reluctant to spare a single man from France and

Lord Fisher obviously half-hearted and pre-occupied with his own schemes for the invasion of Germany. If we were to take full advantage of our sea power it should have been obvious that we should " hold " in the West and " strike " in the East. In the result the Gallipoli expedition became a side-show carried out half-heartedly by " what was over " both from the Army and from the Navy. Compare this with Normandy where nobody had any doubt as to how to use sea power and nobody had any doubt as to where the main theatre of operations should be. Compare also an expedition planned by a Supreme Commander with all resources at his command and one planned by a statesman with resources from " what was over " from the main theatre of war.

Thirdly, we confused the object and put too great emphasis on security. The original object of the Dardanelles expedition was to pass a fleet through the Straits, engage the " Goeben " and " Breslau," eliminate German influence and threaten Constantinople. This could have been done by the Navy if we had been content with something less than 100 per cent. security of our communications. The commanders on the spot were not prepared to take this risk and there was no supreme commander at home in a position to give them an order to do so. In consequence we became committed to a prolonged military operation, during the course of which each day's delay increased the threat to the communications of any force which could have been passed through the Straits, and every day's delay meant that there was less chance of our attaining our object. Much has been written of the Navy's failure to follow up the partial success or minor reverse (which-ever you like) of 18th March ; but " Oh for a Supreme Commander " at that moment.

Lastly and perhaps the most important of all, we have learnt the value of Surprise in warfare. In Gallipoli there was no Surprise. We drew attention to the value we attached to the Straits by an unnecessary and ineffective bombardment of the antiquated forts at the entrance as early as November, 1914; we gave the enemy six precious weeks to prepare for us after 18th March (when it was evident that we meant business) till 25th April, when we landed. We landed on the obvious beaches and were only really successful where there was no opposition or where, as at Anzac, the force was landed by mistake on an " impossible " beach, which proved not to have been defended. Nothing has impressed the writer so much as the absolute necessity for Surprise in any landing operation, and how to achieve it must have been the main pre-occupation of our planners for Normandy—how to effect against the Atlantic Wall that success which we failed to achieve against a few stout-hearted Turks on V Beach twenty-nine years before. Making every allowance for the forces at our command and for the punch of a " smashing blow " it could not have been expected that this would have succeeded if the enemy had been completely ready for us ; but on a 2,000-mile coastline the enemy cannot be ready for you everywhere. I believe that when the tale is told we shall find that our measures to deceive the enemy prior to D-day, our approach at low water and particularly the bold decision to carry out the operation after what appeared to be the most unsuitable weather forecast, had more to do with our initial success than anything else. At any rate the lesson of the importance of Surprise was well learnt and a sufficient measure of Surprise was brilliantly achieved.

I am sure I have said enough to invite the criticism that you cannot compare the incomparable. It is common ground that the operation of the descent on Normandy was brilliantly planned as well as brilliantly executed. The planners were fortunate in having much experience in the present war to guide them. Those of us who took part in the Dardanelles expedition will feel that the country was fortunate also in that the operation was guided by officers who had thoroughly learnt the lessons of history and of our own failures in 1915.

AIR TRANSPORT

By Air Vice-Marshal A. C. Collier, C.B., C.B.E.

On Wednesday, 13th December, 1944.

Marshal of the Royal Air Force Sir Edward Ellington, G.C.B., C.M.G., C.B.E., in the Chair.

On introducing the Lecture the Chairman said: There is no aspect of aviation in this war that has developed more rapidly than air transport. When I tell you that Air Vice-Marshal Collier is the Deputy Commander-in-Chief of the Air Transport Command I think you will agree with me that we should have a very interesting lecture.

LECTURE

FROM the military point of view the outstanding characteristic of military air transport is its ability to fly anywhere over the earth's surface. It can take in its stride oceans, deserts, mountains and inhospitable coasts. It has the same flexibility over the whole of the world as navies possess over oceans.

Next to its power to roam at will over the world, its most marked advantage is its ability to cover long distances at very high speed; moreover, this ability to carry troops or supplies rapidly over long journeys and in any direction is independent of facilities on the ground such as roads or rails. It can navigate accurately by means of equipment carried in the aircraft and ground facilities at its home bases. For airborne assault, that is to say the dropping of paratroops or supplies, it does not even require a landing ground at its point of destination. For the landing of supplies all it requires are those few landing grounds which will enable it to land its cargoes in the vicinity of the forces it serves. No resources must be grudged to make these efficient and productive. If I refer to them as few, it is to emphasize the small requirements of air transport as compared with road and rail.

The ability of air transport to strike suddenly at almost any point in a theatre of war gives it power of surprise in a very high degree. This tends to alter the dispositions of the enemy, who is forced to disperse his defences widely throughout the theatre at the expense of his front line and striking force.

Flexibility between the various rôles of air transport is attainable in a high degree. Air transport forces can at one moment participate in airborne assault operations and at the next be switched to the rôle of supply by air. A week later the same force might be employed in a strategic movement of forces between theatres or in the maintenance of scheduled air services on local or trunk air routes. This is not a pious statement of principle, but an illustration of what is happening to-day in our transport forces throughout the world. Quite recently aircraft which happened to be redundant for a few weeks in the U.K. were mated with ferry crews from a Ferry Unit not at the moment intensively engaged, and switched to the Middle East for ten days special operations. A few days later aircraft and crews reverted to their proper rôle in England.

Other advantages of air transport are related to its speed of movement. By saving time in movement it reduces vulnerability and ties up fewer highly trained personnel and less specialist equipment in transit. It also enables new weapons or other equipment to be introduced more quickly in theatres remote from centres of

production, and makes possible closer and more frequent consultation between commanders, staffs and units. It can carry casualties, urgent medical supplies, mail and welfare items more quickly and directly than surface transport. In doing so it saves life and assists morale.

It is inevitable that at this early stage in the development of air transport the striking advantages which I have enumerated should be partly off-set by certain limitations. Pessimists regard these limitations as ones which will always apply to it; enthusiasts, among whom I include myself, are confident that future research and development will reduce or banish existing disadvantages.

The limitations from which air transport at present suffers are the following. In the first place transport aircraft are unable to lift very heavy or very bulky items. I will discuss later the weights and bulk which can now be transported by aircraft and will give some hint as to what we shall be able to carry some ten years from now. The other main limitation is weather. The effects of weather on flying differ largely in various parts of the world and at different seasons of the year. On the whole we are learning to overcome the problem of weather as it affects operations throughout a period, but it can still absolutely prevent us executing a required operation at a precise time. The same applies, I think, to seaborne invasion, but not to road and railway traffic, except in so far as bad roads can be made impassable by heavy rains.

There is another apparent limitation which is more imaginary than real, but which is often allowed to weight the scales against air transport; this is the fact that it is more costly than surface movement in direct manpower employed for each ton lifted. This is, however, often outweighed by the military or economic value obtained by the rapid movement of the cargo. I will refer to this again when discussing the use of military transport in peace for trooping.

A word of warning is necessary in explanation of the present inability of air transport to lift heavy loads. While we must freely admit present limitations in weight of single loads, we must nevertheless bear in mind the fact that the aircraft can shuttle between its supply base and its destination at a speed which leaves other forms of transport far behind. For instance, a York freighter aircraft can to-day under war conditions fly to Colombo and back twice in a month. I have no doubt whatsoever that under peace conditions this could be increased to between four and five return flights a month. I suppose that a tramp steamer would in peace make some four return trips in the year. In a given period, therefore, the aircraft will make about twelve trips for each one performed by the cargo steamer. To show the speed at which freighter aircraft can be moved along any routes, I need only quote the case of a recent flight to Karachi and back by one of our freighters. The return journey of some 10,500 miles was carried out in under 48½ hours flying time and only 65½ hours elapsed time.

STRATEGIC EMPLOYMENT

Let us now turn to the strategic and tactical employment of air transport. The strategic employment to-day of military air transport is still limited by the size and capacity of our aircraft, and the size of our transport fleets. It is clear that fifty years from now, and probably much sooner, both these limitations will largely disappear. By then the civil air fleets of the world will bear the same relation to strategic movement by air as our merchant marine to-day bears to strategic movement

by sea. Even to-day, however, air transport is able to assume important responsibilities in the strategic rôle. Its main functions in this rôle are the following :—

(*a*) *Strategic Re-deployment*

In the first place, under wise administration and in collaboration with the merchant marine it can provide the three fighting Services with the means of rapid re-deployment in overseas theatres. This re-deployment must necessarily assume the form of re-deployment between bases already stocked by sea transport, or from local resources, with such heavy stores, equipment and repair facilities as cannot economically be carried by air. For instance, in the case of the Royal Air Force one must expect to find fuel, bombs, vehicles, together with other heavy equipment, ready and available in the new theatre. Personnel and machine tools for major repair must also be available either from civil or Service resources. Given properly organized bases, squadrons and the personnel required for their immediate servicing and operation can be made flexible at high speed and short notice throughout the world. A few years ago this was not applicable to fighter squadrons. Now, however, long-range characteristics and devices have brought even fighter squadrons into the class of unit capable of re-deployment by air throughout the Empire. We reckon that a Lancaster squadron could be moved between the Middle East and N.E. India in about 120 York aircraft in two days. If, however, one reduces the air party to the minimum essential to work the squadron for the period of, say, two months, by which time the remainder despatched by sea could catch up their squadron, the number of aircraft required would only be eighty. If each transport aircraft did two trips the total time of the movement would be six days and the number of aircraft halved.

The same applies to the movement by air of Army formations. Approximately 1,000 York sorties would be required to transport an airportable division as at present constituted. This implies its full complement of men with light equipment. If this number of York aircraft were available it would be possible to transport a division from the Middle East to India in forty-eight hours. If only half the number of aircraft were available the move would take five or six days. It is important to remember that the force could be lifted from its existing location in Egypt and taken direct to the area in which it is required. The numbers of aircraft quoted sound large to persons like myself, who have lived in an age in which air transport was notable by its scarcity ; but, in considering the potential uses of air transport in the future one must constantly bear in mind that the numbers of transport aircraft available in peace and war will be immeasurably larger then heretofore, while the carrying capacity of the largest air freighters ten years hence can be assumed to be at least four times that of the York.

The extent to which air transport can assist the re-deployment of the Navy is less than its aid to the Air Force and the Army. I believe, however, that the U.S. Navy in the Pacific is already making very practical use of the air transport forces attached to it. It would be wrong to assume that the Navy does not need the help of air transport. There will always be key personnel and vital items of equipment, the rapid movement of which will be essential to enable fleets to re-deploy rapidly in new theatres.

(*b*) *Movement of Reinforcement Aircraft Overseas*

Another main strategic responsibility which inevitably devolves on the military air transport organization is the despatch and control of reinforcement aircraft to

theatres overseas. This is a task which requires careful preparation and organization. Wastage of reinforcement aircraft and crews in passage to the new theatres may assume alarming proportions if careful attention is not given to this.

The preparation of reinforcement crews and aircraft for long ferry flights to oversea theatres is not as simple as at first sight appears. In the first place the reinforcement aircrews will probably have been trained in this country or Canada and will have no knowledge of conditions and climate in other parts of the world. Equally their experience will of necessity be limited to the training given to aircrews destined for Bomber, Coastal or Fighter squadrons, and they will have no special experience in the control of their engines to obtain the maximum endurance often required for long flights over the sea. Further, there is the point that the aircrew leaving his operational training unit for a home squadron is under the direct supervision of his flight, squadron and station commanders. On the other hand, aircrews despatched on reinforcement flights fly from staging post to staging post where they are not personally known and where much more is necessarily left to their own initiative than would be the case in a squadron. As regards the aircraft, these require scrupulous inspection and air tests before being despatched on long trans-ocean flights. Engine consumptions require to be tested under conditions of long-range flights. Measures such as those described, together with adequate briefing of crews for their long delivery flights, will reduce wastage to a minimum. Unless this problem is treated as one requiring careful organization, wastage and delays accrue in an alarming manner. There must of course be adequate organization along the reinforcement routes, which generally follow the trunk routes.

(*c*) *Operation of Trunk Route Services*

In support of our forces in the various theatres, air transport provides regular services for the carriage of key personnel, equipment, despatches, soldiers' mail and other essential welfare items. On their return journeys these aircraft carry key personnel, including large numbers of return ferry aircrews, mails, and casualties due to sickness or action. The number of services required to fulfil this rôle in war is growing from day to day and is a tribute to the fact that Service and other departments realize increasingly the value of time and the advantages gained by quick passage. In war, when the efficient use of resources is the arbiter governing their movement, the advantages of air transport become strikingly apparent. In peace, when money considerations are more likely to prevail, the initial cost of the air passage provides a deterrent to many business firms and private individuals. In due course, however, in peace as in war, the value of the time saved will become clearly recognized and air movement will be valued on its true merits. The adage "Time is money" is much more true than most of us realize.

TACTICAL EMPLOYMENT

In the tactical rôle air transport operates in direct support of the fighting forces. Its operations in this rôle are now included in the general term "Air Transport Support." This includes airborne assault, supply by air, movement of air-transported units within the battle zone and the maintenance of air lines of communication in direct support of operations. It seems likely that the opening of a campaign or of invasion operations will tend more and more to begin with airborne assault. The airborne assault is certainly the most spectacular aspect of air transport support and the one requiring the highest degree of technical training and development; I will, therefore, devote rather more time to this aspect than to the more

routine work of supply by air and movement of air-transported units. This does not imply that I underestimate the enormous importance of movement and supply by air.

(*a*) *Airborne Operations*

Before discussing airborne operations I should state that the policy governing the training and employment of squadrons in airborne operations is not the responsibility of Transport Command, but of another formation. The following remarks have therefore been drafted to conform to this policy.

In 1940, after the fall of France, the Prime Minister directed that the R.A.F. and Army should turn their attention to airborne forces. At that time resources of all kinds were scarce and very little could be devoted to this new instrument of war. The Army could ill afford to spare men and equipment for the special training required. Even less could the R.A.F. spare operational aircraft, let alone produce new types specially for this work. In these circumstances it was only natural that the development of airborne forces progressed on the lines of quality rather than quantity. Even the most enthusiastic spirits could not stretch their imagination to think in terms of airborne armies descending from the skies. Small and highly skilled task forces were the original conception. Emphasis was laid on the fitness and battle training of the troops, on the Army side; the R.A.F. concentrated on training crews so that they could deliver the troops at their objective in conditions of darkness or unfavourable weather, and so obtain the maximum element of surprise.

In time, however, increasing resources became available and attention was directed to building up airborne forces so that they were not only an instrument of high quality but also one of quantity. The most important matters were the development of special weapons and vehicles for the use of troops on the ground, the construction of gliders, and the modification in quantity of aircraft to make them suitable for airborne work. Considerable difficulty was experienced in producing adequate weapons and vehicles. Each one had to be air-transportable, either for parachuting or glider landing. Until lately the parachuting of heavy equipment has not been practicable and all big items had to be landed in gliders, thus complicating the tactical planning of operations. Recent developments in the parachuting from heavy bombers of such items as 6-pdr. anti-tank guns and jeeps are now making it more and more possible for a parachute force to be put on the ground strong enough to withstand considerable enemy opposition.

Notwithstanding all these improvements in quantity and quality, airborne forces are still an instrument for use only in special circumstances. Even the best equipped airborne troops are still relatively weak and immobile on the ground. Once launched into battle they must be relieved by more heavily armed ground forces as soon as possible.

Thus, airborne forces have progressed in this war to the stage when a force of up to Corps size can be launched in a single operation. But such a force, though numerically large, is relatively weak and should only be employed when the results required could not be achieved by other forces. Airborne troops alone cannot be expected to hold a position for any length of time against armoured counter-attacks.

(*b*) *Tactical Supply and Movement by Air.*

The airborne assault is such an amazing innovation in warfare that the danger arises of concentrating too much on this aspect of air transport support and of failing

to recognize the great importance of providing the maximum possible air lift in the next stage of operations. Planners are perhaps too apt to imagine that sea and land lines of communication will be quickly developed and efficiently re-organized in the early stages of the battle. It may be that the damage done by our own bomber force to the communications on which we will have later to rely is heavily underestimated. If administrative planners stick to realities, they will insist on the maximum *potential* use of air supply at the earliest possible stage of operations after the initial airborne assault. This will involve the allocation of the necessary priorities to air transport in the planning of an invasion or a large airborne operation. In the same way as labour and equipment for the construction and repair of roads and railways are given high priority for carriage by sea, land or air into the battle area, so also it is essential that, if at all possible, landing strips should be built and reserved at convenient points for air transport. The necessary labour and building materials must have priority of passage. Unless this is clearly recognized in the administrative plan, air transport will always in the initial stages have to compete, unsuccessfully, against fighter and fighter-bomber squadrons for the use of the all too few air strips. Priority must also be provided for staging post personnel and vehicles to handle incoming aircraft and their cargoes.

As compared with other forms of transport, air transport is modest. All it requires are the landing strips at the points of supply. The air which supports it to and from its destination is free to all and requires no preparation. Normally it lifts at its home base petrol for the return journey. When one thinks of it, one wonders why it is sometimes difficult to find landing grounds in the theatre of operations for this Cinderella service, whose only aim is to serve.

None of this implies that the main lines of communication of important operations should not be by land or sea. The whole plan for the supply of the forces in the field should assume carriage by surface method whenever possible. The total available airlift should not be eaten up in the planning of supply, if this can be avoided. Air transport should, however, be provided all those facilities to permit it to step in at maximum intensity when things go wrong on the ground or sea.

(*c*) *Casualty Air Evacuation.*

Casualty evacuation by air has become bound up with air transport support. The evacuation of casualties in outgoing aircraft is so convenient and life-saving a method of moving them from the battle area that it is likely in future to become the main means of withdrawing casualties. If this is recognized in the planning stage, it will probably be possible to effect considerable economies of manpower in the battle area. The medical lines of communication to base ports will be reduced to a minimum and the flow of casualties directed instead to landing strips. Hospitals and casualty holding units will as far as possible be sited in proper relation to landing strips.

(*d*) *Air Superiority.*

This leads me to a note of warning that the pre-requisite for successful airborne assault and supply and movement by air is the possession of air superiority. Airborne operations and invasion against *superior* enemy air forces are almost certainly foredoomed to failure. Air transport has practically no means of defence and is particularly vulnerable to enemy fighter attack. There are two main reasons for this vulnerability Firstly, in the design of aircraft for the air transport rôle pay-load is the prime consideration. Defence, as provided by turrets, armour,

or self-sealing tanks can only be obtained at the cost of useful load, either directly owing to their increased weight or indirectly through their effects on the cruising speed or the petrol capacity of the aircraft. Protection has therefore to be restricted to the essential minimum and defence has to be provided either by friendly fighters or, against ground defence, by surprise or the cover of night.

The second reason for the vulnerability of air transport forces is the fact that large numbers of transport aircraft, all directed against targets in the same area, almost inevitably provide a vulnerable target to enemy fighters in the later stages of any assault. Anyone who has in recent months watched from the ground the long lines of transport aircraft making their way from the U.K. to their dropping zones across the Channel, will realize the truth of this.

TYPES OF TRANSPORT AIRCRAFT

(a) Present Types.

Existing types of transport aircraft available to the R.A.F. can be divided roughly into two categories:

(i) Firstly, a twin-engined type of aircraft available for general transport purposes including air transport support, supply and movements by air and operation on the minor trunk air services and on internal air routes. The outstanding example of this type of aircraft to-day is the Douglas C.47 aircraft (Dakota), used by both the United States Army Air Force and the Royal Air Force. The Dakota has such excellent characteristics in this rôle that it is practically the sole type of aircraft employed by either Air Force. For this type of work an aircraft is required to be robust, simple and easy to handle in the air and on the ground. It should be able to carry its full pay-load up to a range of about 1,100 or 1,200 miles and for reinforcement purposes it should be able to cover the distance between staging posts up to 1,500 miles apart. It must be able to tug a glider and must be manœuvrable at low altitude and at slow speeds in order to permit of the dropping of troops and supplies by parachute. The main disadvantage of the Dakota aircraft as a military transport is the fact that bulky items of cargo or air-portable vehicles and weapons cannot be loaded into the freight compartment from directly behind or directly in front. Everything has to go in and out through the side door, which entails a deal of manœuvring and a deal of delay. 160 m.p.h. can be taken as the average cruising speed of the Dakota.

(ii) Other existing types used for air transport are the larger four-engined types used for operations on trunk routes or for major supply operations such as the American air route from North-East Assam into China. The all-up weight of aircraft of this type varies in individual cases between 50,000 and 70,000 lbs. Maximum pay-load is in the region of 14,000 lbs. The maximum stages over which aircraft of this type can be operated non-stop vary from about 2,000 miles from point to point to 3,000 miles. At the moment there are no transport aircraft in existence which can be employed economically and under normal conditions over stages much above 3,000 miles. The average cruising speed of existing heavy transport aircraft varies according to types from about 180 to 220 m.p.h.

(b) Future Types.

Future types of military transport aircraft are, I think, likely to fall into four main categories. These can be described briefly as:

(i) Medium range general purpose aircraft, to replace the Dakota.

(ii) Aircraft for strategic re-deployment, for operation on trunk routes and for heavy supply operations. These again will replace the four-engined heavy transports existing to-day which I have just described.

(iii) Aircraft designed to carry the heaviest and bulkiest loads, in the design of which range and speed have been to some extent sacrificed to load.

(iv) Very long range strategic aircraft for maintenance of essential military services across oceans and between continents.

(i) The medium range general purpose air transport will probably resolve itself into the best possible replacement of the Dakota. Our aim will be to add pay-load and speed, maintaining the same range and adding refinements such as direct loading from the nose or tail. It will be appreciated that there are innumerable ways in which aircraft can be developed in detail to suit all the requirements of air transport.

One very important requirement for this type of aircraft, which is likely to operate from improvised and ill-equipped landing strips, is that loading should be possible without the use of heavy and bulky loading ramps. The lower the door through which the aircraft is loaded the better.

(ii) The development of aircraft for the strategic re-deployment of the fighting Services will be in the direction of increased capacity for the carriage of troops, bulky and heavy items of cargo and air-portable vehicles, guns and military equipment. It will also be our aim to bring these aircraft within the scope of air transport support. This will be achieved both by improving their ability to fly and manœuvre at low altitude and slow speed, as also by improved methods of dropping troops and supplies. The latter will be necessary in order to ensure that the larger cargoes carried by these aircraft can be dropped in a concentrated form at a key spot. For the purpose of operation on the trunk routes these aircraft will probably be built in pressurized form, though this will limit their flexibility of rôle. One can expect their pay-load as freighters to reach 20,000 lbs. or more and their cruising speed will vary between 200 and 250 m.p.h.

(iii) Heavy freighters will constitute an entirely new variety of transport aircraft. Here the whole aim will be to carry the heaviest possible total load between points about 1,000 miles apart. Bodies will be designed for the maximum ease of loading and unloading and to permit of the carriage of the bulkiest loads. For reinforcement between theatres these aircraft will use reinforcement tanks. Their speed will not be great. They will, of course, be designed with a view to their use for the dropping of troops and supplies by parachute. Their pay-loads are still a matter of conjecture. I hope to see aircraft of this type carrying 50 tons pay-load before fifteen years have passed.

(iv) The very long range strategic aircraft will provide us with an aircraft carrying a better pay-load at very long range than there is to-day possible. Above all it will be a guarantee that the development of transport aircraft is unremittingly pushed forward. The heavy bomber of to-day becomes the medium bomber of to-morrow and the light bomber of the future. In the same way the latest and biggest types of transport aircraft may in their design stage, and during their initial operation, appear uneconomical and inflexible in operation as compared with their smaller predecessors. Month by month, however, they are developed to operate to higher all-up weight and are provided progressively with more powerful engines. The final result is that the aircraft can carry increased pay-loads over increased ranges;

at short ranges their pay-loads in relation to their horse-power outvie the performances of previous types of aircraft, and they thus represent one further step forward along the path of air transport. Where ten years ago troop-carriers could only carry a section over short ranges, to-day we can think in terms of platoons over medium ranges. To-morrow we shall emplane companies for movement at high speed over long ranges.

Of the foregoing types it is possible that the first three will be developed to participate in airborne assault. The medium range general purpose aircraft will always probably provide the backbone of initial air landing operations, but it will be our aim to design and develop the other types to permit of their use for the towing of gliders and the dropping of troops and supplies by parachute. The greater the potential lift for airborne operations, the greater the scale on which the operations can be planned.

(*c*) *Gliders.*

Gliders are normally an uneconomical method of carrying loads through the air. It is better to design an aircraft to carry a load within its own structure than to carry it jointly in tug and glider. It is therefore difficult to foresee a future for them in the sphere of civil air transport except by resort to the method of glider pick-up by means of which they might meet a requirement for air transport in areas unprovided with airfields. As a military requirement to meet certain special conditions the main reasons for their employment are :—

(i) In an airborne assault where the destruction of most of the aircraft landed has to be accepted, they represent a smaller wastage than would a similar number of power-driven aircraft able to carry the same loads.

(ii) They can be landed in small areas and on rough surfaces unsuitable for the landing of heavy power-driven aircraft.

(iii) They can be developed and produced more rapidly than power-driven aircraft for the carriage of special and bulky loads.

Thus gliders have a strong claim to employment and survival for special airborne operations. Even if helicopters could be developed capable of landing and rising vertically, it might still be found more economical to use gliders at points where enemy action could be expected to cause the destruction of the majority of craft effecting the landing. On the other hand the glider is less economical than the powered aircraft for normal air supply operations, provided that powered aircraft are available which can carry the same bulky equipment as gliders. Eventually it may be found that development of the parachute or of the rotor may enable us to land bulky equipment and numbers of troops by means of parachute or rotor. Developments of this sort would constitute a threat to the survival of the glider.

The technique of glider pick-up enables gliders with full loads to be picked up from the ground by airborne aircraft after the shortest take-off runs. Loads can be lifted from small fields of rough surface and surrounded by obstructions. Gliders thus make air transport possible in areas unprovided with prepared airfields or landing strips. The method can also be used for the return of gliders after an airborne assault. The technique of this operation needs perfecting and a period of development is required before it can be accepted as a safe and reliable method of air transport operation.

(*d*) *Helicopters.*

The development of helicopters in the United States has roused fresh interest in this type of flying machine and in its potential application to military operations. It is obvious that aircraft which can land and take off vertically would serve a useful purpose in airborne operations and in the supply and communications of columns operating behind an enemy front. The development of helicopters will therefore be carefully watched by all those responsible for air transport operations, but it would be premature at this stage to assert that they will play an important part in transport support operations.

ORGANIZATION OF AIR TRANSPORT FORCES

We have seen that one of the main characteristics of air transport is its flexibility. Air transport forces must be ready at a moment's notice to switch from airborne assault operations to the rôle of supply by air. Later they might be employed in the operation of internal air routes in their own theatre, from which duty they might suddenly be called on to operate in the re-deployment of the fighting Services between theatres.

It is axiomatic that a change of rôle would always be more difficult to accomplish if it is accompanied simultaneously by change of command, and above all if responsibility for the general administration of the force has to change hands. For this reason alone it is logical that transport forces should be placed under the central control of one Commander-in-Chief and one H.Q. for the purpose of their general administration. Perhaps I shall explain myself more clearly if I define my meaning of the term "general administration." By this I mean responsibility for ensuring that the force is adequately organized, trained, equipped and manned for its task in any part of the world. The execution of this responsibility will often have to be done through the agency of other Commands, but nevertheless it remains true that full flexibility of rôle and movement throughout the world is unlikely to be achieved unless there is one Commander and H.Q. constantly pre-occupied in ensuring that the following requirements are met :—

(*a*) Uniform training throughout the world.

(*b*) Uniform establishments, as far as possible, throughout the world.

(*c*) Arrangements for the servicing and maintenance of the force in all theatres.

(*d*) Arrangements for the provisioning and distribution of technical spares and equipment.

(*e*) Technical preparation of aircraft to guarantee successful operation in all climates and under all conditions throughout the world.

(*f*) Manpower control of the force and forecasting of future manpower needs, particularly in relation to training.

There are other reasons than the need for flexibility for placing air transport under a central world-wide Command. The task of organizing and operating trunk-route services and reinforcement movements throughout the world creates the need for centralized control. It is literally impossible to organize to a high degree of efficiency movements passing through various oversea Commands, unless control is centralized at one Headquarters. Both the control of the aircraft themselves and the handling of the passengers and cargo that they carry become haphazard and disorganized if left to the individual control of each overseas theatre.

A trunk air route is a living organism requiring one head. Once this head is provided, it becomes possible to provide uniform establishments, airfields, flying controls, maintenance and servicing throughout the whole length of the route. Such uniformity not only guarantees the safety of aircraft and passengers, but also governs the efficiency and comfort of their movement.

If we examine our requirements at staging posts and consider how we prepare to meet them, we shall get some idea of the need for centralized control of all non-operational air transport movements along our air routes. In planning the intensity of our scheduled services we have to consider the burden that will fall on each staging post as a result of these services. The planning staff has to calculate how many inspections and of what kind will have to be made each day, each week, each month, at each staging post; how many aircraft will have to be refuelled; how many passengers fed and housed and how many aircrew accommodated. These are just some of the questions which require consideration before the establishment of a staging post and its equipment can be assessed. Now suppose that an attempt is made by a large number of operators to fly along our routes at haphazard under their own individual control. Cases will immediately arise where technical servicing facilities, accommodation and other essential requirements are not available in proper measure at certain staging posts. Other staging posts may meanwhile have little or no work. The congestion at some of the staging posts will cause delays, inefficiency and discomfort. I think this will explain to you sufficiently clearly the need for centralized control of operations along our trunk routes. A similar control must also be exercised on the movements of reinforcement aircraft for similar reasons. Inasmuch as reinforcement aircraft tend to use the main air routes, control of trunk routes and reinforcement aircraft must be in the same hands.

You may ask how trunk route movements can be properly co-ordinated with local non-operational air movements originating in each theatre. This is not as difficult as it seems if you grant the right to Transport Command to have Groups in each theatre overseas and to place on the shoulders of these overseas Group commanders responsibility for operating local non-operational air movements for each theatre commander. The Group commander has a dual allegiance, to the local theatre commander for local movements and to Transport Command for inter-theatre movements. The planning of the air routes in his theatre is then performed in the following way. In the first place we calculate the number of inter-theatre movements along the trunk and reinforcement routes and work out in detail the establishments and facilities required for this purpose at each staging post. Our Group commander in the theatre then obtains from the Air Chief in his theatre a forecast of local air movements and of inter-theatre movements originating from that theatre. The requirements at staging posts arising from these local movements are added to requirements for the trunk routes, and your air route system in that theatre is then fully planned to perform its task. Of course, necessary margins have to be allowed for backlogs caused by bad weather and for emergency movements caused by exceptional circumstances.

PLANNED EFFORT

I have already given some indication of the need for planning establishments and facilities throughout the routes in order to obtain accuracy of scheduled programmes. I would like now to give you some idea of the need for intensive operation of aircraft in an air transport organization. Other Commands are usually confronted by the problem of having to hold establishments of aircraft and personnel at their

stations to meet peak operational needs depending on the actions of the enemy or other circumstances. Except in the sphere of air transport, operations by Transport Command differ from those of other Commands in that we can make profitable use of each ton mile that our aircraft can carry. The demand for air lift is in present circumstances almost inexhaustible. Therefore, our aim is to obtain maximum flying hours each month from our aircraft. You will realize the difference which this creates in our technique of operation when I tell you that in a bomber force a figure of 70 or 80 hours per aircraft per month would be quite high, whereas in America civil air transport companies have averaged something like 300 hours per aircraft per month. To obtain intensive flying hours from one's aircraft is simple in theory but not always so simple in practice. In theory all one has to do is to relate the flying hours to requirements in aircrews, maintenance personnel, hangar floor space, airfield equipment and facilities, technical spares, flying control facilities and other similar requirements. In practice, the difficulty arises that failure to obtain the necessary facilities in any one of these various items may jeopardize the whole plan. The strength of a chain is its weakest link, and nowhere is this seen more clearly than in efforts to obtain maximum intensity of operation from transport aircraft. A contributory factor is that very often the facilities are required at airfields not under the control of the operator.

FLYING CONTROL

The responsibility of Transport Command for the briefing and control of non-operational movements by air has resulted in the development of a Flying Control system along the trunk and reinforcement routes which bids fair to be a pattern for the future. By means of a system of so-called area controls at stages 300 or 400 miles along the routes, aircraft are passed from one positive operational control to another. Crews are instructed to report themselves and get bearings or fixes at specified intervals. The Flying Controllers thus keep a check on the position of the aircraft and provide the captain with such information or advice as he may require. Allied to this system of flying control are meteorological and briefing organizations for the use of aircraft in transit. At any staging post aircrews can obtain the information they require for their onward flight. Route books are provided containing photographs and data about the airfields on the route and other relevant information. This initial attempt at a world-wide organization to provide briefing, meteorological facilities and flying control to all aircraft in transit will be further extensively developed in the future, and it should not be assumed that the responsibility will always remain in the hands of the authority responsible for operating air transport. An air transport organization does however provide a suitable basis for the movement of aircraft in transit and provides experience and a pattern for any organization, national or international, which may later be evolved.

TRAINING

Aircrews destined for Transport squadrons require special operational training in the same way as aircrews earmarked for Fighter, Bomber or Coastal Command squadrons need their own particular operational training. This does not imply that there is any black magic about transport flying, but there are nevertheless a lot of methods, lessons and facts requiring study by aircrews before they are competent to undertake transport operation. Aircrews entering squadrons employed on normal transport duties are given a course in a Transport Operational Training Unit if destined for a twin-engined squadron, or a Heavy Conversion Unit if their future squadron is equipped with four-engined types. In an Air Transport organiza-

tion wastage can and therefore must be kept down to a minimum. For this reason our aim is to obtain aircrews already possessing considerable flying experience for the input into our training units. We try to avoid taking aircrews direct from training units into our operational training establishments.

Transport Support squadrons need special operational training units of their own. The syllabus covers subjects not required in normal transport squadrons, such as glider-towing, parachute dropping, and also pays particular attention to low flying tactics.

It must be emphasized that training occupies a very important part in an air transport organization. At first sight people are tempted to think that transport flying from A to B is a simple matter not requiring specialist operational training, but experience unfortunately proves otherwise.

CARGOES AND PRIORITIES

There is a widespread belief that an air transport organization bears the responsibility for providing cargoes for its aircraft and stating their priorities. This is not the case. An air transport operator will always be wise to refuse any responsibility for the provision and selection of passengers and cargo. The operator's responsibility is to provide the air lift to meet requirements communicated to him by other authorities. In the case of a military air transport organization the co-ordination of the requirements of various departments is of necessity effected in the Air Ministry and priorities are, of course, decided through the instrument of Government machinery.

FUTURE DEVELOPMENT

In my references to the employment and equipment of air transport I have given some indication of the extent to which the development of transport aircraft will progress in the next ten or fifteen years. How will the development of air transport affect the whole conduct of military organization and war in the future? If we consider military organization first, we can, I think be fairly confident that in peace all trooping will be done by air and all dispositions of garrisons throughout the Empire be influenced by our ever-increasing ability to re-deploy key forces rapidly in accordance with any particular plan of defence. My confidence that trooping will be effected by air arises from the fact that this will permit of considerable savings in establishments overseas. If trooping is done by the slower method of sea transport there is a long gap between the return of tour-expired troops from the theatre and their replacement by fresh troops from elsewhere. This means that, if garrisons are at all times to be maintained in adequate strength, additional forces must be established to cover the deficiences caused by the lengthy period of sea travel. Air transport will enable us almost wholly to overcome this difficulty.

As regards the strategic dispositions of forces maintained for the defence of the Empire it is, I think, clear that savings will be effected and efficiency improved by our increasing ability to maintain central strategic reserves at selected points in the Empire and to retain elsewhere the minimum forces necessary for the maintenance of bases and for local defence until such time as reinforcements of key forces and personnel can arrive by air. The extent to which we shall be able to do this will depend on the number of transport aircraft immediately available, but it seems fairly certain to me that we shall tend more and more to organize our imperial defences in this manner.

As regards the conduct of war, my personal feeling is that the opening stages of war will tend more and more to consist of rapid, large scale and possibly long range airborne operations. Air transport with its power to carry forces rapidly over long distances will provide those responsible for planning operations with the means of executing manœuvres of this kind. A defence against such manœuvres will I think have to rely largely on the power of rapid airborne counter-concentration. As the ranges of air transport increase, airborne assault by an aggressor will be technically possible at any point in one's territory. In such circumstances it will be impossible to be strong everywhere. Defence will have to be provided by strategic resources located at convenient points from which to effect a rapid re-deployment by air to counter the aggression. In these circumstances I foresee the probability of growing attention being paid to the air transport resources of a country.

DISCUSSION

AIR CHIEF MARSHAL SIR ROBERT BROOKE-POPHAM: I would like to ask whether any plans will be made for forming in Air Transport Command field construction units and whether you will transport them by air. If so, how many aeroplanes would it take?

THE LECTURER: I know of no such plans. I think many of us would like to have plans of that sort to put into execution. I have not available here any data regarding numbers of aircraft necessary to carry constructional material such as pressed steel planking for making airfields. I have heard that it has been done in the Pacific and we have on one occasion begun to use the method ourselves of lifting our own pressed steel planking and putting it into a theatre of battle, but not of transporting the labour or the machinery for construction.

COMMODORE R. M. TAYLOR, R.N.: Could you give us any idea of the number of aircraft which would be required to make a lift from the United Kingdom to, say, Colombo of two aircraft a month and two back? How many aircraft would be locked up in a service of that sort?

THE LECTURER: As I have said, at the moment one aircraft can do two journeys a month to Colombo and back, that is, each one of the fleet can do two return journeys a month.

COMMODORE TAYLOR: Even if they reached an intensity of 300 flying hours a month there would be a big gap when they had major overhauls?

THE LECTURER: No, a major overhaul would only be done at the end of a year of operation; everything else is included in the twice a month, or 300 hours a month which should, in my opinion, be achieved in due course. Actually, five trips a month at present cruising speeds would be something like 330 hours a month.

THE CHAIRMAN: You talked about picking up gliders from an aerodrome, I take it that the aircraft picking up do not land?

THE LECTURER: No.

THE CHAIRMAN: Is the glider at rest when it is picked up?

THE LECTURER: Completely at rest.

THE CHAIRMAN: Do you have an elastic rope?

THE LECTURER: There is an elastic rope and a series of drums in the aircraft, a cable is paid out from a drum with springs set at a certain resistance. It is picked up astonishingly rapidly, I have seen them lifted in 100 yards or so.

THE CHAIRMAN: With no ill effects on the inhabitants of the glider?

THE LECTURER: Most people like it and one of the most experienced pilots says he prefers taking off that way to being towed off normally along a runway.

AIR COMMODORE H. GORDON-DEAN: At the beginning of this war I had the task of planning air transport serving two Departments of State and a small fleet was formed from the slender resources of our civil aircraft. It had a pay load of, I think, 100 tons over 500 miles range. My job was to sell that to anybody who did a certain amount of lift. I tried to get the War Office and others interested, and we did carry a good deal for the Air Ministry and helped in the rapid moves of R.A.F. fighter squadrons during the Battle of Britain. But the use of air transport as an essential auxiliary to modern war was not, at that time, fully appreciated. The whole thing was stopped, and the fleet and its crews dispersed.

We have moved a great way since then. I would like to ask the lecturer how he envisages the future of our commercial transport aircraft in relation to future war? We know that the Merchant Service is diverted to the war effort in precisely the same way as our civil aircraft were diverted at the beginning of the war from peace duties to war duties. Assuming that we have, as we hope, in the very near future a very strong commercial civil aviation fleet flying over the air routes of the world, does he think that this would be able to take over rapidly many of the functions of Transport Command which he has described to us this afternoon?

THE LECTURER: Because of the consideration of time I cut out of my lecture references to the fact that priorities are no concern of Air Transport Command; priorities are the responsibility of the Government, and the execution of priorities, for getting proper loads whatever they are and relating the loads to the aircraft capacity, is the task of the Air Ministry and not of Transport Command headquarters.

There is obviously no policy laid down in the matter of the use of civil air transport in a future war, but the points that arise in my mind are these: firstly, civil aviation is likely to be subsidized in one form or another for some time to come. Whether it is in the form of building airfields for them or of carrying mails, the Government and other national authorities will pay out large sums of money for the good of civil aviation, and it seems to me logical that Governments will therefore require civil aviation to provide them with the air lift which they find necessary and which they can actually use. In my opinion, during the lifetime of my sons it is very unlikely that there will ever be too much air lift at times of national crisis, and therefore I consider that Governments are likely to call in civil aviation to the extent that they can use it. It has been said at times that civil aviation would develop along lines so different from military aviation, whether transport or otherwise, that it could not be used suitably in war. In my opinion civil transport will always find a use in war, in some roles if not in others, and I would expect a Government to make full provision for the use of civil aviation if necessary; but I do not consider that civil aviation could replace military transport in peace time. There will always be a necessity for a military transport organization to perform tasks such as trooping, to be ready for strategic deployment at any moment, to be strategically placed, and to be the backbone upon which air transport should rely for war.

THE CHAIRMAN

I think we have had a most interesting lecture and I should like to emphasize one or two points in connection with air transport. I would like to remind you that air transport, as aviation goes, has a respectable history. As far as I remember it was first started when the Air Ministry took over responsibility for the control of Iraq, Palestine and Transjordan. One of their arrangements was to take two of the thirteen squadrons allocated to that task and provide them with air transport machines. In those days they carried about twelve men and they proved very useful in one or other of those recurring crises which used to take place in that rather restless part of the world.

I am told that at the present moment in Burma half the troops engaged with the enemy are constantly supplied by air transport. The number of troops is considerable. You may remember that the Prime Minister told us not long ago that there was a larger number of troops employed against the Japanese in Burma than anywhere else in the

Far East. American aircraft or bombers working until quite recently from airfields in China were operating in a strength of something like 100 Super-Fortresses, and all of them were supplied from Assam by air. That will give some idea of what is possible even to-day by the use of air transport.

Finally, I think you will probably agree with me that the early stages of the war against the Japanese, after our disasters at Singapore and the Philippines, were only brought to so successful and rapid conclusion in New Guinea, the Solomons and other islands through the use of air transport. Air transport in the future will play a very great part in warfare. I was particularly interested in the Lecturer's suggestion that all trooping would be done by air. Those of us who have travelled in transports in the past would welcome such an innovation.

The vote of thanks to the Lecturer was then put to the Meeting and carried by acclamation.

The vote of thanks to the Chairman was proposed by Air Chief Marshal Sir ROBERT BROOKE-POPHAM and carried by acclamation.

SOME MAJOR LESSONS OF THE WAR

By Colonel R. B. Pembroke, Coldstream Guards

THE present seems a suitable moment to consider some of the major lessons which have been learnt in the War up to date, since these lessons must govern the reconstitution of the Army in peace. Many of the lessons learnt are not new, they are the lessons of old wars which have had to be relearnt. Of course fashion in warfare changes as often as fashion in women's clothes though generally with more reason. On the other hand we must remember that it has been said that the British Army always goes to war trained and equipped for the end of the previous one. That is not a true statement, it derives mainly from the British habit of invariably depreciating their own efforts, but there is a modicum of truth in it due I think to the British preference for slow evolution rather than revolution and also to failure to differentiate between what is true as a principle and what is true only in certain particular circumstances. In the present war, for instance, many soldiers were all too prone to regard methods, equipment or organizations proved in the Western Desert as necessarily applicable to campaigns in other countries, and we shall have to be more careful not to be dogmatic about things which may only apply in the peculiar conditions of Italy.

In this connection the British Army is at a disadvantage since it has to be designed and trained to fight anywhere in the world and it takes time to develop special equipment when required. It is a much easier problem for the continental armies. They, for instance, have their mountain troops as an integral part of their armies; they can develop heavy tanks without worry about the problem of transporting them oversea. The post-war British Army will not be able to specialize though it is to be hoped that Combined Operations training will play a more important part in peace-time than it has done heretofore. The British Army will have to be designed to fight in "average" country. "Average" or normal country is hard to define: it is easier to say what is not normal country. Mountainous country as met in the Italian campaign is not normal country, nor is the jungle of South-East Asia and the Pacific. For these we shall have to improvise when we meet them, as we have done in this war.

I want to pursue for a moment my statement that one must be careful not to be dogmatic about things which are practice and not principle. Developments in the technique of war follow largely upon the discovery of means to overcome limitations of weapons or the human body. For instance, the Russians have shown in this war how the apparent hindrances imposed by weather could be overcome or disregarded and have gained considerable advantage thereby. It has been said that General Mud has been demoted to Corporal. My point is that the Russians refused to accept the conventional dictates of the weather built up on practice, and thereby advanced the technique of war. It may be the direct result of that lesson being learnt that so much campaigning was achieved during the monsoon in Burma last summer.

We shall fail to progress in peace-time with tactical developments and the exploitation of lessons learnt in this war unless we take note that there is a tendency among various arms to build up what one may call "vested interests." For instance, you may hear it said and accepted that armoured cars can only be used in certain

circumstances, that heavy bombers can only be used in certain circumstances: and these alleged limitations delay the advance of the technique of war until the arrival of someone who, in order to achieve a certain result, either disregards or overcomes these limitations. In the past, for instance, it was said that tanks could not operate at night, and it took a resolute commander to determine that there was a great deal they could do in poor visibility and to prove by adequate training what could be done. It is now said that close-support bombing by night is "not on." The truth is that if close-support bombing is required then improved training methods and, if necessary, better equipment will make it possible. In North-West France the Allies achieved surprise by refusing to accept the limitations apparently imposed by lack of harbours and by developing other means of getting stores ashore in sufficient quantities for major operations. We must keep our minds flexible and view with suspicion any limitations which are the result of particular circumstances or mere practice.

One of the things which has been learnt or rather confirmed is that good discipline is an essential foundation for the successful army. Before the War, discipline had become somewhat unfashionable because it had come to be thought of as a senseless form of Prussianism, out of place in the democratic world. But that attitude was surely based on a misunderstanding of the word. In the Oxford Dictionary, discipline is described as, "Training, especially the kind which produces self-control, orderliness, obedience and a capacity for co-operation." Surely no one can object to that.

It might have been expected that the Commandos would have needed some loose form of discipline to encourage qualities of independence, yet they too found that sound discipline had to form the basis of their training. Perhaps the best example of the effect on a unit of poor discipline is the entry in a Japanese sergeant's diary for May, 1944: "Men in our troop are very un-cooperative. The reason is that we 300 men were hastily organized. Officers lack unity of thoughts. . . ."

The German, Russian and British Armies have different methods of obtaining good discipline depending upon their different ways of life and thought, but they all have it. For us the immediate essentials are self-respect and confidence in ourselves and our leaders—"the discipline of goodwill, not the discipline of fear. Not a negative restraint but a positive loyalty. For discipline is not an evil burden to be endured, but is a noble quality to be achieved."

As regards confidence in the leader, we have seen in this war as in others the value which can be derived from the effect on morale of the personality of the commander. Some commanders, like Haig, do not speak easily to troops; some do not let themselves be seen; but those who have the gift of gaining the confidence of the private soldier gain the equivalent of many battalions.

On the more material side the lessons and advances are many. There are all the lessons from combined operations and the improvements in technique since the first landings at Guadalcanal and Dieppe in the Autumn of 1942. There are the lessons on that controversial subject, the use of infantry and tanks. There are the developments in supply by air and airborne landings with the flexibility which they give. There are the developments in smoke and the converse, artificial illuminant, and there is what we have learnt from the Germans about the counter-attack. I am going to deal with five major subjects only: the power of the artillery, depth in the attack, the importance of superior mobility, the air arm on the battlefield

and the set-up of the armed forces after the War. I cannot claim that the opinions expressed are above controversy; how could one, since war is an art, not a science?

The Power of the Artillery

Before this war it was the French manuals which emphasized the ability of commanders to influence the battle by their control of artillery. There was no such mention in our manuals. When times were bad with the Russians after the German invasion they had to cut their divisional artillery to the barest minimum of forty-eight guns. When production improved they formed artillery divisions rather than replace their divisional weapons and were therefore able to keep a large part of their artillery as a direct and vital influence on the battle by concentrating it at the decisive place. The Russians speak of the artillery "leading" the infantry on to their positions.

For our part we have made great strides in developing the concentrated power of the artillery. In the defence, centralized control of the guns has of itself at times defeated a major attack, as at Medenin on 6th March, 1943. In the attack, it is important to note that it is centralized control which has given the additional power to the artillery in this war as compared with the last, and not the weight of shell, though it is true that the air-burst has made troops in trenches more vulnerable than they were. At the battle of the Somme, 1st July, 1916, there was approximately a gun or howitzer to every twenty yards of front assaulted, with a proportion of heavy or medium pieces of one in three. In the attack by the Fourth Army on 8th August, 1918, the artillery used worked out at one piece to every ten yards, the proportion of medium or heavy artillery having risen to a proportion of seven to twelve. The artillery concentration in the battles of this war do not seem to have been on a greater scale, and it seems almost certain that the proportion of medium and heavy pieces has been less. In the crossing of the Messina Straits the proportion of medium to field guns was reported as rather less than one in five.

As regards the effect of gun fire in the attack, the experience of the War is that, despite the air-burst, artillery fire neutralizes but does not destroy an enemy well dug in. Assuming that the infantry are right up to the barrage or timed concentrations, there must be a minimum interval of two minutes between the guns lifting and the arrival of the infantry on the objective, this interval often being more when the timing has gone wrong. It is during this interval that the main trouble occurs, and the enemy is sometimes able to man his weapons before our infantry arrive. The standard example is the American landing on Tarawa in the Gilbert Islands in December, 1943. The Americans put 2,200 tons of shells and 700 tons of bombs on to that strip of land about two miles long by half a mile broad. They captured it, but at very heavy cost, the reason being that owing to some miscalculation the landing craft grounded several hundred yards from the shore, with the result that the Japs were able to man their weapons while the Americans waded in.

This problem of how to reach the enemy's position after the main covering fire has lifted remains one of the greatest problems to be solved. More may yet be achieved by improved methods of control of artillery support which will allow timings to be altered after the advance has started, and secondly by careful timing of the armour to neutralize the objective and the weapons covering it during the awkward two to five minutes before the infantry get there.

As a general point we must integrate as much as possible the major means of fire-power—artillery, mortars and machine guns, particularly in defence; and

we must be careful, if the infantry gun is introduced, that it does not lead us to make the same mistake as the Germans with their infantry guns, namely to forget the importance of concentration and centralized control of artillery.

Depth in the Attack

At the beginning of the War there was much to be said for the opinion that the defence would prove stronger than ever before. In the war of 1914–1918, deep defence positions, heavily manned, exhausted attackers before the complete break-through was achieved; the final victories were won against Germans exhausted by their incomplete successes of the Spring of 1918. By 1939 the number of automatic weapons in a unit had greatly increased and, in addition, in the West, both sides had constructed powerful defences along their frontiers. Yet in 1940 and since, carefully prepared defences of great strength have been repeatedly overcome. It seems worth while to consider how this has come about. It should be said at once that any idea that the Maginot Line was useless is nonsense. What was wrong was not the Maginot Line but the Maginot mind. Lines and walls are bad names for defences, since they suggest narrow obstructions rather than deep zones of defence which they invariably are. But all the great defence systems of this war have provided very great problems indeed to the attacker before they were overcome. The Maginot Line was turned, so was the Mareth Line after direct assault had failed. The Atlantic Wall was broken in spite of its strength, to some extent because the length of coast to be defended was so vast, as well as because of the ingenuity and resource of the attackers. The Gothic Line is being pierced, a line of great strength but held by a weakened and insufficient army. The Siegfried Line is being turned, it is also being pierced, a process which would have taken a very long time if the number and quality of the defenders had been adequate. It cannot be said that these walls and lines were anything but of great value, though it is true that they cannot be expected to provide absolute defence. Deep defence zones will at least cause very considerable delay and, if used as the Siegfried Line was used in 1940, will provide the opportunity to weaken one front in order to concentrate the maximum force elsewhere.

It seems clear then that the great offensive successes of the War cannot be put down to any inherent failure of the deep defence zones, which have frequently been overcome, nor as has been shown are they due to any increased power of the artillery, nor can the air arm alone have brought about these results. I suggest that the cause is the greater depth now possible in the attack.

In 1914—1918 the great attacks used to peter out before complete victory could be achieved. Foch was wont to use the analogy of the disappearing ripples after a stone has disturbed a pond. In April, 1918, after the initial success of Ludendorf's second great offensive, Foch remained unmoved despite Haig's calls for reinforcements. When Foch was asked why he was so unworried, he drew on a piece of paper the frontage of the break-through. He then drew a series of curves to represent the lessening impulses of the advance until they stopped at a distance from the original front equal to the frontage of attack. This is in fact approximately where the offensive stopped, though the important thing to note is that there was no vital objective within the area captured and therefore the offensive was a failure. Does Foch's rule of thumb method of measuring the scope of offensives hold good to-day? It is true that the depth of penetration must hold some relation to the width of the initial break-in. Nevertheless it seems clear that Foch's axiom no longer holds good, the reason being the greater depth of attack now possible.

The means we have of getting the greater depth in the attack are these :—

1. Increasing the amount of medium and heavy artillery, though this is often impracticable. The use of armoured formations.
2. Direct air support.
3. Airborne troops.
4. Special Service Troops landed by air or other means.
5. Underground armies (only possible when operating in friendly country overrun by the enemy).
6. Strategic bombing.
7. Economic warfare.
8. Political warfare.

We have made great progress in the use of these weapons. We have not yet succeeded in integrating all these means of warfare, nor has it yet been fully appreciated that they should be directed to deepening the attack, that is directly assisting the actual battle so far as possible, and that only secondly should they engage in projects which do not directly affect the campaign being waged on the ground.

The Importance of Superior Mobility

Great resources are of limited value without mobility. Superior mobility may be the most important single factor in the winning of a campaign, though not in the winning of a single battle. Here are some examples from different parts of the world.

1. In Ludendorf's first Spring offensive in March, 1918, he was unable to turn his successes into complete victory, primarily owing to his shortage of cavalry horses and the forage for them.

2. In East Africa in 1940 the British Empire forces were small and, in order to give them some possibility of covering the immense distances involved, highly motorized. Their mobility was largely confined to the few roads available. The Italians were far superior in numbers, including guns. They had the equipment and ability to move across country; they could have used their numbers and the ability to threaten many vital points to gain decisive success, but they lacked the resolution to do so. Here the point to note is that the British actual mobility was less than that of the Italians, though their speed along roads was greater.

In the first main engagement in December, 1940, General Godwin-Austen's division used bulldozers through the African bush which then became passable for motor transport. By this means the British were able to gain superior mobility and it was this factor which proved decisive in General Cunningham's victory at the Juba River and in the clearing of the Italians from British East Africa.

3. In a combined operation the main difficulty is not so much the actual landing as the defender's superior mobility which enables him to concentrate before the landed troops are established ashore. In the Pacific this advantage to the defender is largely nullified by the poor means of communication available. In Normandy the Allies achieved superior mobility by clogging that of the Germans through air power.

4. In their advances on the White Russian front in June–July, 1944, the Russians appear to have gone across country in very wide enveloping movements, cutting off the Germans in the main points of resistance, which were naturally at focal points and along the main lines of communication. It is not clear how the Russians moved across country at such speed, but it is worth noting that their achievement owed a great deal to its boldness. In the ordinary way such a policy has its dangers. We saw in the past how German hedgehogs used to outstay envelopment in a way which they no longer seem able to do, and we have seen the danger of wide envelopment against a strong enemy who makes use of interior lines in the disaster which nearly occurred at the opening stages of the British offensive in the Western Desert in November, 1941.

Perhaps the clearest example of the value gained by the Russians from superior mobility is their success in the Winter campaigns in moving across snow and ice, and in their overcoming of mud in the Autumn rains and Spring thaws.

Victory goes to the side which "gets there fustest with the mostest."

The Air Arm on the Battlefield

A nation has X amount of men and women and Y amount of resources, and the problem is to use them in the most effective way. There is nothing nowadays to spare. To put it in a domestic way, when after the War you re-equip yourself with plain clothes, you will not, unless you are feeling rich, buy a suit for every occasion, you will appreciate the kind of life you are going to lead and then allocate your limited resources accordingly. It is the same with the resources for war; only there the problem is more difficult, since resources of all kinds have to be allocated several years before they will be used.

One of the reasons why the Germans lost the last World War was that they had spread their efforts over building a large navy as well as a large army. If they had said to themselves that the British could only be beaten by denying them the use of the sea lines of communication and had gone first for a navy greater than our own they might have been justified. It was certainly not sound to divert a great deal of effort to make and sustain a great navy and at the same time to go nap on a great army. In the event their navy was wasted except in so far as it contained a large Allied navy.

Now after June, 1940, and in 1941, we were a Commonwealth with power dispersed throughout the world; and the difficulty, or rather impossibility, of deploying an army on the Continent large enough to defeat a great European Power was as real as it always has been in history. It could not be foreseen that Russia would enter the War on our side, nor could it have been said with certainty in the Autumn of 1941 that she would be able to stay in it. It could not be foreseen that the United States would fight or that if they did they could develop their power in time to intervene. In these circumstances there is no question, but that the right decision was made to plan an enormous strategic air force which alone offered a possibility of winning the War. Now that we are trying to win the War on land, it is clear that you cannot have it both ways. You cannot design a great air force to win a war in the air and have enough effort left over to change your mind and try to win it on the land. This is not belittling the great achievements of the Strategic Air Force; it is stating mathematical facts. The decision must be

made as to whether a war is to be won in the air or on the ground and all resources devoted to the decisive sphere, though anything left over can be used for other long-term projects. In this war, however, as has already been said, our hands were forced in 1940.

One of the most notable features of the Russian campaign is their concentration of effort at the decisive point. The Red Army and Air Force is entirely devoted to winning the battle in hand. It is possible that one of the means by which they make these amazing advances across countries with poor communications is by the use of transport aircraft on a large scale for maintenance purposes. The Russians only indulge in strategic bombing when the fronts are quiet. This is of course to some extent because they have not the bombing force available, but the main reason may be that even with their enormous resources they feel they cannot afford to dissipate them to the extent of providing a large strategic bombing force.

Bearing in mind the principle of economy of force and the effort involved, can it have been sound strategy for Bomber Command to attack Königsberg in September, 1944, apparently in support of the Russian Baltic campaigns? Should not our resources have been concentrated on winning the War in the West? If it be said that all these heavy bombers could not have been used on the Western Front it serves to reinforce the argument that one of the lessons of this War is that there should be no slack and nothing to spare.

It is considered that air power in support of the British land campaigns of this war up to the time of the Italian campaigns should, from the strategical point of view, have been on a higher scale, and that since that time there have been effort and resources devoted to strategic bombing which would have had a quicker effect on the War if divided between air support for the land campaign and more divisions on the ground. It has been stated that our heavy bombers alone absorb more of the country's productive power than the whole of the British Army.

The Set-up of the Armed Forces after the War

During the consolidation phase after the War decision will have to be made as to the allocation of man-power and resources to the British armed forces. The decision will of course be conditioned largely by the international situation then existing, but assuming that there is a period of comparative stability it is possible to state some broad principles which will govern the policy laid down. Leaving out of account the calls of industry, the Merchant Navy and Civil Defence Services, the main problem and controversy will probably relate to the allocation of our remaining resources.

The main factor will be that now as always we are completely dependent upon sea power. In the past this has meant naval power. In fact it means control of the essential sea lanes and we have seen in this war, particularly in the Pacific, that the air has a great and essential function in the maintenance of sea power. It is clear that the first call on our resources must therefore be the provision of air power and naval power sufficient to keep open our sea lines of communication, together of course with the necessary land forces to hold the air and naval bases which will be required.

It will be more than ever impracticable for Great Britain to remain in isolation. The development of air power and the possibility of development of long range weapons such as flying bombs and rockets makes it more than ever necessary that

a potential enemy should be kept away from the Low Countries and Channel ports. You cannot keep an army away by air power alone.

Our most likely Ally is France, which is an underpopulated country. She was not satisfied with the six divisions we provided in 1914, nor the ten we provided in 1940. In the future she will certainly press for as large an army as possible, together with the necessary air force to support it, to supplement her own. While our policy cannot be ordered purely to provide satisfaction for France, and though we invariably shrink from Continental commitments, we can at least see that whether we like it or not continental war invariably involves us either in the provision of a large army or in circumstances which show the need for one. It is true that the requirements of industry in peace-time and the difficulty of maintaining and training a much larger army may prevent us keeping one in being; nevertheless plans can be made for the additional divisions to be formed when the need arises. We cannot expect to deploy a large army quickly, though we can do so in the future quicker than we have done in the past. Some sort of universal training for young men seems inevitable in Great Britain after the War, and even if it provides military training only in small degree it will provide a useful foundation for the quicker formation of an army.

Comparatively large forces both air and army may be required to protect the Middle East and certain other areas vital to Great Britain, the Dominions and India.

Lastly and most difficult to assess, can a war be won by the use of air power alone, with the Army as a mere auxiliary?

THE SERVICES AND SCIENTISTS

By "VULCAN"

THE war in Europe is drawing to a close. That against Japan is just beginning in earnest. The nature of these two wars is fundamentally different. There is a danger that in pursuing the second we may lose sight of some of the lessons of the first. Amongst such lessons is that of our weapon development, since it is only fair to assume that Japan, with her limited industrial facilities, will be outclassed by the Allies in both the quality and the quantity of her weapons.

None will seriously deny that the outbreak of the War found us a long way behind Germany in weapons and equipment. She had been planning for this war for at least ten years and it was only to be expected that, when she assumed the offensive, she would surprise us with some new development. Not only did she do this, but she has continued to do so steadily throughout the five years that we have been fighting. First she produced the dive-bomber and parachute and glider troops, next the 88 mm. gun and coloured smoke, then the "Tiger" tank, the flying bomb, and, lastly, the rocket. None of these technically were revolutionary, and our technicians, given the requirement, could undoubtedly have produced a better product. In fact, the 88 mm. gun is almost identical with our 3.7 in. It is only the mounting and use of the gun as an anti-tank weapon which is its surprise feature. It is easy to underestimate our own achievements and to decry our own efforts but it is undeniable that our side of the balance sheet makes much poorer showing. It is for consideration why this should be so.

Now, primarily, the work of inventing and designing new weapons and equipment lies with the scientists, who have without exception placed themselves at the service of one Government department or another for the speedier prosecution of the War. A study of the work of our scientists shows that for years they have led the world in many fields. They have produced many outstanding discoveries and much brilliant work. Radar and Penicillin are cases in point; both are already well on their way to revolutionize thought in their particular spheres. If more surprises have been sprung against us than we have been able to spring on the enemy, we cannot reasonably blame the scientists.

Nevertheless, we have failed adequately to make use of the brains that are available for our benefit. Radar was taken up because of the pertinacity of the inventor, not because of any organization that existed to make use of it. In the event the organization was the chief stumbling block which he had to overcome. If one is so bold as to attempt to examine the organization of science to assist the war effort, its incomprehensible intricacies are at once apparent. The scientists have their Advisory Councils, with their committees, their technical committees, their sub-committees, their panels, their boards, their "extra-mural" work and their "independent scientists of wide experience." Nothing could be more involved; nothing less comprehensible; nothing better designed to impede the smooth giving of responsible scientific advice to the soldiers who so badly need it. Here lies at least a part of our troubles.

Further, if we examine the military organization for making use of the scientists we find that it is equally unsatisfactory. The only scientists in the War Office are in the Scientific Adviser's branch, which has no responsibility for the design of new weapons of war—the one thing in which scientists are chiefly concerned. In

the event, the responsibility for guiding the scientist in what to make is that of the arms directorates, who are also charged with such day to day matters as organization, scales of equipment and alterations to establishments. These smaller problems are much more urgent and take up much of their time, with the result that the officers in these branches are quite unable adequately to tear themselves away from their present worries to consider what may be required in, say, three years time for some as yet unconsidered conception of battle. There are other scientists in the Ministry of Supply, but the divorce of that vast octopus from the War Office is far more absolute than the distance between the Strand and Whitehall indicates. The disease, therefore, consists of the scientists having no easy channel through which to help the soldiers, and of the soldiers having no " forward thinker " whose job is to make use of the scientists.

It is not, therefore, a matter for wonder that the scientist complains that the soldier never tells him what to make ; whilst the soldier, introduced to some new weapon only when it is more or less finalized, either condemns it as impracticable or as frequently thinks that it will answer all his troubles. In any case modifications follow. It cannot be disputed that there is inadequate joint consideration at an early stage. Always time is wasted. Frequently, when these delays ensue, the Germans spring a quick weapon surprise on us, the countering of which diverts scientific and industrial resources, thus further delaying the production of our own weapon surprises. Our enemies undoubtedly suffer from similar, perhaps even worse, difficulties and we must be careful not to exaggerate our own shortcomings ; but there is a definite failure of organization and it would be foolish not to review it and lay it bare before the Japanese war intervenes to conceal it from us. We come, therefore, to our first point, that considerations of weapon and equipment development for the future must be separated from day to day executive functions. In other words, to write G.S. specifications for future weapons and equipment a special " star gazing " section is required, just as a special " star gazing " section is provided in war for the planning of future operations. Further, this section, if it incorporates all arms, will provide that necessary co-ordination between arms which alone can prevent the development of a multiplicity of types. We want, therefore, a special section of the General Staff, relieved of all executive functions, comprising representatives of all arms, and charged with :—

(*a*) Instructing the scientist and designer what to make.

(*b*) Keeping in touch with all new scientific developments so as to study how they can best be applied to the Army.

This latter task is so important that it would be most unwise for the General Staff to delegate it to any supply directorate. It should be unnecessary, but it may be wise, to add that in order to keep their " feet on the ground " this special section of the General Staff must maintain close touch with the troops. This will include frequent consultation with those arms of the Service that are charged with implementing their recommendations.

Now ordinary staff officers, provided they are given the time and the opportunity to do so, may be able to produce G.S. specifications, and with imagination they should be able to instruct designers what to make. But, in general, they would have quite inadequate scientific knowledge to keep in touch with new scientific developments. For this work the General Staff wants its own scientists. They would be continually visiting the Universities, laboratories and research establishments, keeping in touch with developments and thinking, all the time, of how the work

being done in those establishments could be applied for the benefit of the Army. For imaginative thought of this nature scientists of real ability are required; but they could not be expected to spend the whole of their lives on this "liaison" work. In order to keep up to date they should be allowed and encouraged to do a period of fundamental research in Government laboratories and even from time to time to be seconded for research work to one of the Universities. Thus would fresh minds with new ideas be brought to bear on old problems until, at length, the application of science can solve them.

A G.S. Experimental Establishment

But just to establish such a branch is not enough. There would be but little gain if they have not the means to try out their new ideas. For such a purpose they would require an experimental establishment. Apart from the technical experimental establishments—which exist at such places as Shoeburyness and Woolwich and with which we are not concerned in this paper—our "user" experimental establishments are scattered amongst the various training schools in England. In most cases their location has been dictated mainly by the difficulty of finding suitable ground on which live ammunition can be expended upon an adequate scale. Their functions are limited by the quality of the personnel employed, and by the fact that the main task of such establishments is teaching, not experimenting. But air transport has now so speeded up communications that there is no longer any necessity for us to carry out trials in the United Kingdom. Far better ground, and more of it in, say, Tripoli, is now as close to London as Wales and Scotland were before the war. It is suggested therefore, that somewhere along the North coast of Africa is the place at which this new General Staff Branch should have its experimental establishment. It is not envisaged that the conditions of climate and terrain along that coast would in every case be suitable for the trials of all equipment. But, again, North Africa is centrally situated from a transportation point of view, and the necessary trial "teams" could always be sent to where special conditions were to be found. The task, therefore, of such an establishment would be:

(*a*) To experiment with such new ideas as are sent to them from the War Office.

(*b*) Scientifically to carry out user trials of new weapons and equipment.

Again, the staff should consist of soldiers and scientists working together on the solution of problems. Should they require any guidance as to how to work, they have only to study the work of this kind that has for some time been carried out in Canada—a country which in this respect is far in advance of the United Kingdom. With the formation of such an establishment, experimental work to be carried out at schools would be limited to that of considering improved methods of training. There is plenty of scope for work in such a field.

Finance

It would be out of place in any paper dealing with post-war organization to ignore the all-important factor of finance. It is certain that, in peace time, conditions of extreme financial stringency will descend again upon all three Services. It is felt, nevertheless, that the proposals so far put forward have certain financial advantages:

(*a*) A system of proper General Staff experiment is the only one that will prevent us issuing troops with unsuitable weapons and equipment and thus wasting vast sums.

(*b*) Such a system alone will enable us to keep up to date in weapons and equipment without necessarily going into production until the need arises. Further, when the need does arise we shall know what to make.

(*c*) It is not unreasonable to expect that the Government of the day will be prepared to produce money for research and experiment to an extent that it would be quite unprepared to do if the aim was to re-arm or re-equip the forces.

Inter-Service Equipment

So far we have only been considering the needs of the Army, and the whole of this paper has been written from that point of view. But of recent years the three Services have been working more and more together. By the end of the Japanese war there is every prospect of their being completely integrated. The additional advantages to be gained by having the special staff and experimental establishment referred to above organized upon inter-Service lines are so great as to need little emphasis here. Co-operation with the Ordnance Board, who already carry out technical trials for all these Services, would be facilitated. Again, the proposed site on the North coast of Africa is surely suitable from naval and air as well as military points of view. Finally, for the work of this experimental body to be really economical, it obviously must comprise representatives of all three Services, since it is in the unification of inter-Service demands that the greatest scope for economy lies. But, even if this staff and establishment should be an inter-Service one, there is no reason why the Army need wait for the Navy and the Air Force. Let the Army give a lead in the matter. For the sooner the Army forms its plans the more likely we shall be to secure the services of good scientists of the right type, many of whom are now serving. If we delay, industry will soon offer such men far more remunerative employment. We cannot afford to lose their services.

Summary and Conclusions

In conclusion, therefore, let us summarize the situation and proposals for the future. Five years ago we were caught ill-armed and ill-equipped and we had no organization to think ahead of the event and plan our weapons and equipment. During these five years we have developed no organization for such a purpose. As a result our armies in the field and civilians at home have been unable to spring weapon or equipment surprises on the enemy. Rather has the enemy sprung surprises on them; whilst our scientists, wise after instead of before the event, have been accused of always "shooting the tail feathers out of the bird." Our failure in this respect is unquestionably one of organization. We cannot allow this to continue. Wars may be won by the fighting spirit of the people, but the length of time for which they continue depends upon the provision of suitable weapons and equipment. These cannot be provided without objective future planning. For such a purpose a special staff, which should consist of both soldiers and scientists, is required. Further, for such a staff to function economically it should be an inter-Service one.

It is considered that if such a staff is organized, provided with a suitable experimental establishment, and granted adequate funds, then it should enable us to keep up to date in weapon and equipment development, and also to make full use of scientific progress. Not only this—it will also have at its disposal the necessary knowledge which alone will enable us to produce the right type of weapons and equipment before, instead of after, the event.

THE GERMAN LONG RANGE ROCKET

(From an Official Source)

GERMAN scientists have been investigating the possibilities of developing giant rockets for the past twenty years. It was, therefore, not a difficult matter to turn these experiments in a war-like direction when the requirement arose for a very long-range weapon. It was from these beginnings that what is now known as the V2 was developed.

Although, undoubtedly, experiments will have been made with various sizes of long-range rockets, the one which has been standardized is a streamlined projectile 46 ft. long, 5½ ft. in diameter, with a sharply pointed nose, and carrying four large external stabilizing fins at right-angles to each other at the rear. When filled with fuel it weighs about 12 tons.

The V2 is much more complicated in design and manufacture than the flying bomb. It consists of the following main assemblies, all contained in a shell-like structure which follows in construction the same general form as an aircraft fuselage :—

(i) Nose, which contains an explosive warhead of 2,000 lb.

(ii) A compartment containing control equipment.

(iii) Two large aluminium fuel tanks, one holding about 7,500 lb. of alcohol, and the other about 11,000 lb. of liquid oxygen.

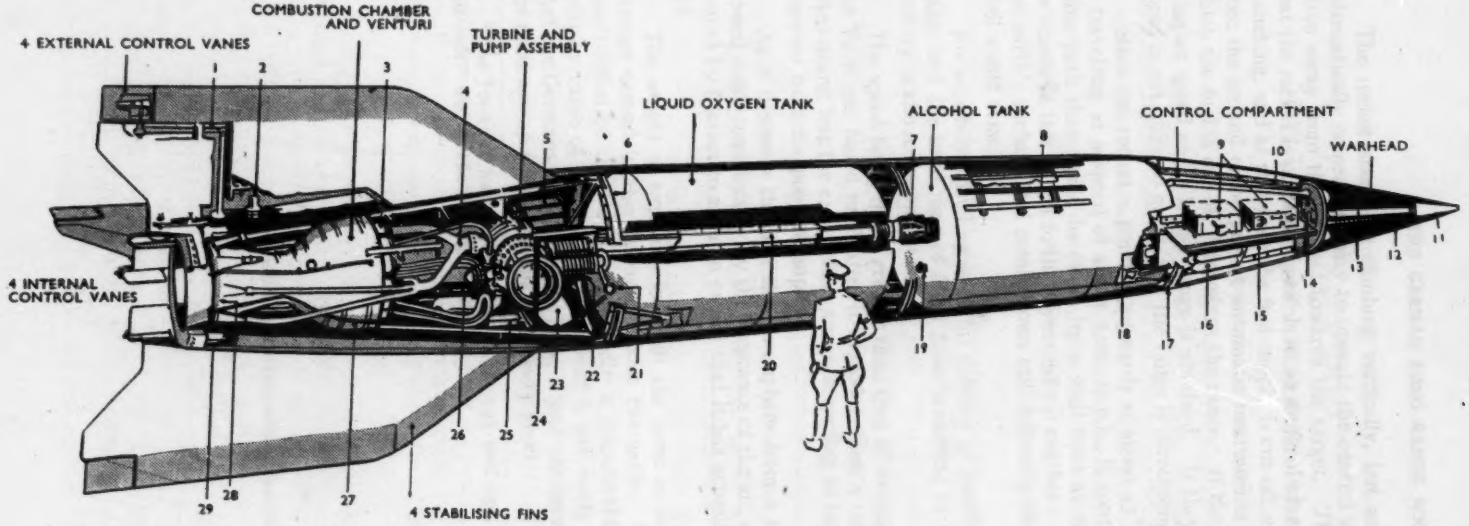
(iv) A turbine and pump assembly with a gas generator to drive the turbine.

(v) A large combustion chamber and venturi into which the alcohol and liquid oxygen are forced through a series of jets.

(vi) Two sets of control vanes. One set operates internally in the jet stream, and the other externally on the edges of the four stabilizing fins.

The propulsive system of the V2 is thus a rocket. It derives all its power from the fuel it carries, and does not depend upon external air for combustion. It can, therefore, operate equally well at extremely high altitudes where there is practically no air present.

The method of launching and operation of the V2 is quite simple. The rocket stands in a vertical position on a concrete platform or hard surface at the launching point. The turbine, which is driven by super-heated steam produced by mixing very concentrated hydrogen peroxide with calcium permanganate solution, is started up and drives the pumps which force the liquid oxygen and alcohol into the combustion chamber. This mixture is then ignited electrically from some distance away and the rocket takes off. Once ignited, the mixture of alcohol and oxygen continues to burn violently. The products of combustion are forced out at a high speed through the orifice in the rear end of the venturi as a jet of very hot gases. The energy so liberated creates a thrust of about 26 tons which propels the rocket forward.



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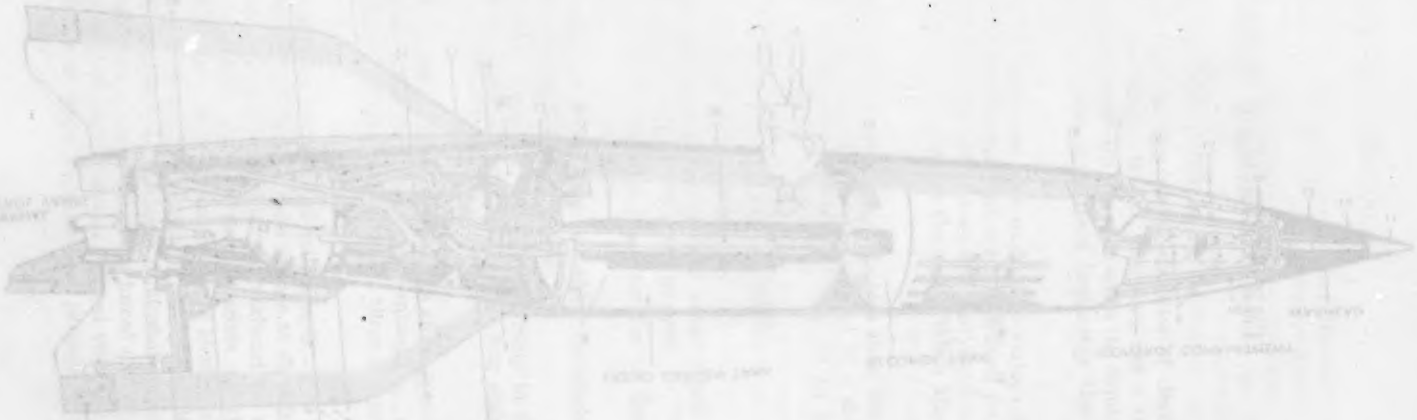
V2 ROCKET

The above is an officially prepared sectional drawing of the German V2 rocket projectile. The size of this weapon is approximately 46 ft. long and 5 ft. 6 ins. in diameter.

Key to annotations.—1. Chain drive to external control vanes. 2. Electric Motor. 3. Burner cups. 4. Alcohol supply from pumps. 5. Air bottles. 6. Rear joint ring and strong point for transport. 7. Servo operated alcohol outlet valve. 8. Rocket shell construction. 9. Radio equipment. 10. Pipe leading from alcohol tank to warhead. 11. Nose, probably fitted with nose switch or other device for operating warhead fuse. 12. Conduit carrying wires to nose of warhead. 13. Central exploder tube. 14. Electric fuse for warhead. 15. Plywood frame. 16. Nitrogen bottles. 17. Front joint ring and strong point for transport. 18. Pitch and azimuth gyros. 19. Alcohol filling point. 20. Double walled alcohol delivery pipe to pump. 21. Oxygen filling point. 22. Concertina connections. 23. Hydrogen-peroxide tank. 24. Tubular frame holding turbine and pump assembly. 25. Permanganate tank (gas generator unit behind this tank). 26. Oxygen distributor from pump. 27. Alcohol pipes for subsidiary cooling. 28. Alcohol inlet to double wall. 29. Electro hydraulic servomotors.



The rocket starts by climbing vertically, but an internal gyroscope control automatically comes into play to operate the control vanes, and thus to cause it to curve away from the vertical towards the target. The mechanism is so arranged that the rocket is pointing upwards at an angle of about 45° about one minute after launching, and at this time the fuel supply is cut off, either by remote radio control from the ground or by pre-set automatic instruments in the rocket. The point at which the fuel is cut off determines the range. If the fuels burn for a longer time, a higher speed and a longer range is obtained. If they burn for a shorter time, the speed is not quite so great, and the range is correspondingly decreased.

Since the rocket is pointing upwards at about 45° when the fuel is cut off, and is travelling at a speed of about 3,000 m.p.h., it continues upwards, following the same path that would be taken by a shell fired at this angle. There is little air resistance in this region so that eventually it reaches a height of over 60 miles above the earth's surface, and comes down still following the same parabolic path that a shell would take.

Rockets being fired against this country at present have a range of about 200 miles, and the total time of flight from launching to impact on the ground in this country is about five minutes.

The speed being much greater than that of sound, the noise of the approach of the V2 is not heard until after it explodes, then a rumbling sound like thunder is often heard, but the exact effect varies according to the distance and position of the observer from the point of impact.

As it descends through the atmosphere from a height of 60 miles, the V2 is slowed down considerably by the resistance of the air, and at the same time becomes heated by friction to such an extent that it has actually been observed glowing dull red.

The weight of explosive is about the same in both the V1* and V2, and the damage caused is also generally about the same. Although the design and the construction of the V2 is undoubtedly a considerable technical achievement, the military value of the weapon at present is extremely doubtful. There is evidence that the Germans were forced to bring it into use before it was fully developed, and the accuracy up to the present is not very great.

* See JOURNAL for August 1944, pages 243 and 246, for articles on "Jet Propelled Aircraft" and "The Flying Bomb."

SALVAGE OF SHIPS AND CLEARANCE OF HARBOURS

By Captain J. B. Polland, R.N.V.R.

On Wednesday, 10th January, 1945, at 3 p.m.

Rear-Admiral A. R. Dewar in the Chair

The Chairman: Our Lecturer to-day has spent a good many years in practical salvage. At present he is working for the Admiralty, and has been doing so since the outbreak of war. He holds the post of Deputy Director and Chief Technical Officer in the Salvage Department. In addition to that he has been in personal charge of various important salvage operations round the coast, and has salved some very valuable ships under quite difficult conditions, so he is well qualified to talk to us this afternoon.

LECTURE

In the mind of the general public marine salvage is usually associated with some interesting spectacular or adventurous undertaking, such as the recovery of gold from the "Egypt" or the "Laurentic," the raising of the ex-German battleships at Scapa or the refloating of the liner "Normandie" in New York. But in fact it is, and always has been, a very ordinary and practical business in all maritime nations. As a business it is closely associated with shipping and marine insurance interests and is mainly concerned with the saving or rescue of merchant ships, damaged or in distress as the result of some maritime peril.

Since about 1925 it had been steadily on the decline in the United Kingdom. The gradual adoption of new and improved mechanical aids to navigation, such as the echo sounder, the gyro compass and directional wireless, had brought about a steady reduction in the number of casualties arising from collisions and strandings, and consequently at the beginning of the War there were only a few concerns in this country carrying on salvage as their sole business.

In time of war marine salvage becomes a vital service, particularly to this nation, which then depends entirely on the preservation of its merchant shipping for its very existence. The enemy, who apparently appreciates this fact better than we do ourselves, has in both wars made most determined attempts to wipe out the merchant marine. The number of casualties to be dealt with and the operational conditions of the areas in which they occur, and the extent of the sea routes to be covered, necessitated ship salvage being organized and run as part of the Naval Service. It was also necessary to ensure that all available resources in men and material and ships were organized on a national basis and directed to the best advantage in furtherance of the war effort.

It is the business of a war salvage organization to render first aid to all crippled ships at the earliest possible moment so as to prevent their condition deteriorating and, by temporary patching up, to render them seaworthy enough to reach port when permanent repairs can be effected. We had 17,500,000 gross tons of ocean-going merchant vessels under the British flag in 1939. By 1943 we had lost 11,500,000 tons, or practically two-thirds of our original fleet. These losses would have been much greater and the effect much more serious had it not been for the tonnage saved from loss by the Salvage and Rescue Tug Services organized and controlled by the Admiralty. The extent of the effort contributed by these services may best be illustrated by some figures. From September, 1939, to December, 1944, the total tonnage of vessels salved by the Salvage and Rescue Tug organizations amounted to

over 5,000,000 tons of merchant shipping. In the same period the total tonnage of new merchant vessels built in the United Kingdom was 4,750,000 tons. There is no necessity, therefore, to dwell on the need of an efficient Salvage and Rescue Tug Service in time of war, except to point out that at the beginning of this war such a service did not exist. If the salvage resources of the country had been fostered and maintained in peace time, and not allowed to decline as they did, many more ships might have been saved in the first twelve months of war.

The development of aerial warfare enabled the enemy to attack ships lying in harbours and docks and to lay mines in estuaries, narrow fairways, and rivers, where the sinking of one or more ships would seriously hamper the working of the port and cause danger and delay to other vessels using it. The successive campaigns exposed a great many Allied ships to all forms of attack on new and extended shipping routes, so that in addition to providing salvage services in our own harbours and coastal waters it was also necessary to cover, as far as possible, all the shipping routes in use. This called for the provision of a large number of ships and the establishment of bases all round the coasts of the United Kingdom, in Iceland, the Faroes, N. Ireland, the Mediterranean, Africa and India. Each ship or base is manned by divers, riggers, shipwrights, mechanics, and equipped with all kinds of salvage plant and engineering stores, so that each is an independent unit capable of tackling any kind of salvage job which may arise in the area with promptness and efficiency.

The character of the War also introduced a new type of work on a very large scale. This class of work is usually termed Harbour Clearance work to distinguish it from Salvage Work, which has for its object the saving of a ship with a view to restoring her to service. In Harbour Clearance work, the saving of the ship is of secondary importance, the main object being to clear a berth or fairway which the damaged ship is fouling or blocking. Similar types of ships and equipment are used on both Salvage and Harbour Clearance work, but for the time being we will consider one or two aspects of Salvage work proper.

One of the most important factors in salvage work is time. Whether a ship be stranded, damaged in collision or by mine, bomb or torpedo, her condition after damage is always tending to deteriorate. The elements of wind and sea contribute to the general deterioration. If she be stranded, or floating partially or wholly on bulkheads or decks, these parts of the ship's structure are being subjected to strains and stress for which they were not designed. A few hours delay, therefore, in beaching, taking in tow or carrying out certain essential first aid work may make all the difference between successful salvage and total loss of ship and cargo. Salvage ships must therefore be stationed at convenient bases from which they can reach the scene of the casualty in the shortest possible time.

In order to carry out any kind of work efficiently and expeditiously, proper tools and equipment with men trained in their use must be provided. This applies also to salvage work. Although much useful work can be done and was done in the early days of the War with improvised equipment, untrained men and converted ships, the best service with maximum efficiency can only be obtained with ships and equipment specially designed for the purpose. The variety and complexity of the problems which arise in salvage work govern the design of ships and equipment used. The variety is due not only to the different nature of the casualties and to the different types of ships, but also to characteristics of tide or coastline peculiar to the area or the waters in which the casualties occur and to the conditions under which the operations have to be carried out. For example, in the United Kingdom,

strandings on the North and West coasts are usually on rocks and accompanied by heavy bottom damage. Strandings on the East and South-East Coasts are usually on sand or shingle. Bottom damage is rare, but the dangers of scouring and the ship breaking her back are usually present.

The lifting and removal of wrecks in the tidal waters around the United Kingdom are facilitated by the rise and fall of the tide, but in the tideless waters of the Mediterranean quite different equipment has to be used for such work. Around the United Kingdom coast a temporary timber patch over damaged side plating is generally all that is required to carry the ship to the nearest repair port or drydock, but something more substantial is required to cover similar damage when the ship has to make an ocean voyage say from Iceland or North Africa to the United Kingdom. Work carried out on ships in an active theatre of war where the enemy is still delivering attacks must be more in the nature of first aid than work carried out in the safety and shelter of a home port.

SALVAGE SHIPS AND EQUIPMENT

The design and construction of suitable salvage vessels is determined by these and other considerations. There are so many different types of work in different seas that it would not be possible to embody in one vessel all the characteristics needed to deal in the most effective way with every class of work. The design of a normal salvage vessel therefore represents a compromise between the elements of speed, endurance, draft, bow lifting capacity, derricks, hold space and towing ability. If good towing ability is desired, one must sacrifice shallow draft and after deck accommodation, as towing ability calls for deep immersion of the propeller and a hook positioned well amidships. For coastal salvage work shallow draft is of greater importance than towing ability because tugs are usually available for towing. If the ship is required to take heavy lifts over the bow and over the side she must have a larger length/breadth ratio than the normal type of ship, and this is not the hull form best suited for speed. A ship which may have to work in the Indian Ocean, where distances between ports are much greater than in home waters, must have more endurance than a ship which will be required to work only down the United Kingdom coasts.

As soon as facilities were available the Admiralty decided to build two types of salvage vessels, one an ocean-going type and the other a coastal type; and in addition three types of dumb lifting lighters and one type of submersible pontoon or camel. Subsequent experience in every theatre of war has proved that the design of these vessels is in every way suitable for the great variety of work which they are required to undertake.

All salvage vessels carry a great amount of portable equipment, the principal item being pumps. The majority of the pumps which are of the centrifugal type are specially designed for this work. They must have either a steam or an internal combustion engine as the prime mover, and they are designed for a high suction lift against a relatively low head, as this is the condition of pumping met with most frequently on damaged ships. In this respect they differ from the centrifugal type of pump used for fire-fighting which is designed for a low lift against a high head. The other special features about salvage pumps are their weight and size. Pumps have to be placed in rather inaccessible positions, manœuvred along alleyways and through narrow doors and hatches, and often have to be manhandled into position when no power is available. For this reason it is imperative that their overall

length, height and breadth should be as small as may be compatible with strength and efficiency. Owing to the decline of Salvage business of which I have spoken, no salvage pumps were produced between the wars. Most of the former manufacturers had gone out of business or broken up their patterns. Hence, when it fell to the Admiralty in 1939 to arrange for the production of great quantities of equipment, new designs had to be prepared at short notice, embodying the improvements of the past twenty years in internal combustion engines and pumping machinery. Naturally, perfection was not obtained at first, but modifications have been introduced continuously as suggested by experience and salvors are now in a better position than ever before.

The next most useful piece of equipment carried by all salvage ships is the portable air compressor, usually of the two-stage type and driven by an internal combustion engine. It provides compressed air at 100 lbs. pressure for working pneumatic tools both above and below water, and also for driving a type of submersible sump pump which is quite a new innovation in salvage work and one of the handiest and most reliable pumps for draining yet produced. Compressed air is also used for driving not only portable air winches but also for driving steam winches on a wreck when no steam or other power is available to work derricks, etc. When a large number of divers are employed, the air compressor can save the work of the large number of men who would normally be employed turning the manual diving pumps. Perhaps the greatest use found for compressed air on salvage work is that of restoring buoyancy to compartments which are damaged and leaking or flooded and which can be sealed off effectively at the deck or crown of the compartment.

Since the last war both gas and electric equipment for cutting and welding steel below water has been developed. The oxy-hydrogen under-water cutting blowpipe has been in use for many years, but the electric oxy-arc cutting torch is quite a new development. So also is the electric arc process of welding under water. These tools in the hands of properly trained operators enable patching and repair work to be carried out under water much more efficiently and in less time than was possible a few years ago. This particular type of equipment has made it possible to carry out extensive repair work in places abroad which enabled the damaged vessels to undertake long voyages in a seaworthy condition to the repair ports of the United Kingdom. It will be appreciated that a steel patch which can be fabricated, fitted and properly secured to a ship's hull is a much better job than the old-fashioned timber patch secured by hook bolts and backed up by a filling of dubious concrete.

Another new piece of equipment is the Cox Submerged Bolt Driving Gun. This handy tool enables the diver to drive screwed studs or bolts into the hull plating for the purpose of securing a patch of steel or wood. There has also been developed for use with this gun a hollow bolt which can be driven partially through and affixed securely in the crown side or bottom of any compartment into which it is required to introduce compressed air. Although originally developed for under-water work, this gun is now extensively used for the repair of tanks and other armoured vehicles in the field. It is much more portable than any type of welding equipment formerly used for this purpose. In principle it is a real gun, firing a projectile in the form of a stud or hollow bolt. It can also be used for punching holes, in place of the slow and cumbersome pneumatic drill generally used for that purpose.

DIVERS

There is very little difference between the diving equipment used to-day and the equipment used twenty years ago, although a modified type of the self-contained diving equipment has been developed for special work, and some researches have been made into the possibilities of using a mixture of helium and oxygen or helium and air or hydrogen and oxygen for deep-water diving. It was due to the experiments carried out by the British Navy and to the researches of men like Professor Leonard Hill and Professor J. B. S. Haldane that the greatest strides were made in the last twenty-five years in the technique of deep-water diving, and it is hoped that the lead will be maintained by this country despite the War.

The development of new and specialized tools for under-water work has made it possible for divers to carry out more effective and permanent work under water than ever before, but it also calls for a high degree of skill and training on the part of the divers who have to use them. The older generation of divers secured their training or obtained their experience on public works and were generally recruited from the ranks of semi-skilled labourers. In order to obtain the best results with modern equipment, men selected for training as divers should already have proved their ability to handle tools and perform skilled work by reaching proficiency in some trade before taking up diving. Very few men qualifying as divers in the Royal Navy can produce good results under the conditions met with on the average salvage case until they have had some additional training and experience under these conditions. But such experience and training can only be gained by sacrificing a certain amount of time and efficiency on an actual case. It would be of great benefit from the salvage point of view if naval divers could be trained with a view to their being employed on a greater variety of work than just clearing propellers or inlets and searching for lost anchors. United States naval divers undergo an extensive and prolonged course of training in many branches of work under conditions closely resembling those found on practical work, and by a process of elimination and classification a very competent and all-round type of diver is produced. Salvage officers who have worked with these men in the Mediterranean and in Normandy report that the standard of skill and ability is exceptionally high.

I should like to refer here to the salvage of H.M. ships which are damaged in action at sea. It is no longer part of the work undertaken by the Naval Salvage Service for the simple reason that it is carried out very efficiently and expeditiously by the ship's own staff through the organization known as Damage Control. The object of Damage Control in H.M. Ships is firstly to maintain the fighting efficiency of the ship and secondly to keep the ship afloat. The work is in the nature of first aid and similar to that carried out by a salvage party on merchant ships. The nature of the damage from bomb, torpedo, mine or shell fire is similar; the effects are identical—flooding, loss of buoyancy, heeling, change of trim, etc. The measures adopted to control flooding and counteract its effects are the same—pumping, patching, shoring of bulkheads, decks, etc., and the sealing of leaks. The same equipment is used—portable pumps, cutting and welding gear, timber, cement, etc. This first aid as practised by the Damage Control organization on board is much more effective and offers better prospects of saving a badly damaged ship than dependence on any shore-based salvage organization because it can get to work immediately the damage occurs. The results which have been achieved in this war prove the wisdom of the saying that " Time is the very essence of salvage work."

COMPRESSED AIR FLOTATION

Another and somewhat similar demonstration of the importance of the time factor in the saving of damaged ships is afforded by the use of compressed air for this purpose in tankers. Its history is rather interesting and may be recounted here. Early in 1940, the Salvage Department of the Admiralty having successfully used compressed air on the salvage of a number of tankers which were in danger of sinking through damage caused by bombs, mines and grounding, drew attention to the ease with which the compressed air available on all motor tankers could be adapted and used by the crew to restore buoyancy and counteract flooding immediately tankers were torpedoed or mined at sea. The idea was developed by the Eagle Oil Shipping Co., who proceeded to fit all their motor tankers with a compressed air system from the compressors in the engine room and from an additional stand-by compressor located under the forecastle head. Very soon afterwards one of these ships was attacked by a submarine which scored several hits. Fourteen out of twenty-seven tanks were damaged and open to the sea and both pump rooms were flooded. The compressed air was brought into use immediately and pressure was maintained which enabled the ship to remain afloat until she reached dry dock, having completed a voyage of several hundred miles floating on air. Soon after, another ship belonging to the same Company was saved by the similar compressed air system installed on board.

The example set by the Eagle Oil Co., and the energy and persuasiveness of the Manager, Mr. Nelson, O.B.E., eventually had its effect, and in 1943 a public announcement was made to the effect that the Ministry of War Transport in June, 1942, had adopted a system of using compressed air which was described as " one of the most important and successful of the war " in the saving of ships.

Tankers are particularly well adapted for salving by means of compressed air, and more so than merchant ships because of the great amount of sub-division by longitudinal and transverse bulkheads and because their decks and hatches are easily made watertight. In this respect there is a certain similarity between tankers and warships which are even more subdivided and have decks at certain levels which can be easily made watertight.

Excess pressures of 7 lbs. are regularly used on tankers, and excess pressures of 20 lbs. were frequently used on W/T bulkheads, hatches and doors of the ex-German battleships at Scapa. The hatches and doors were strengthened to withstand this pressure, but the bulkheads were not.

HARBOUR CLEARANCE

In the first two years of the War the salvage resources of the country were mainly devoted to saving of ships, and although the bombing of ships lying in ports and mine laying by aircraft in the approaches and estuaries had produced a crop of casualties which called for some Harbour Clearance work as distinct from Salvage work, it was not until the campaign developed in Libya that the necessity of special salvage parties to take care of Harbour Clearance work as part of the main war operation was fully appreciated. Fortunately special craft and equipment had been designed in anticipation of a considerable amount of work of this nature arising in our own home ports from attacks by aircraft.

From 1942 onwards Harbour Clearance work played an increasingly larger part in all the succeeding campaigns in Tunisia, Sicily, Italy, Southern France and Normandy. In all the ports lying on the main lines of communication of the Allied

armies as they advanced, the enemy endeavoured by every means in his power to delay our entry into the ports from the sea and to deny us the use of the port facilities. The use of the ports at the earliest possible moment after capture and to the greatest possible extent was a vital matter to us in order to maintain the supplies and relieve the burden on the long and hard pressed lines of lorry transport. In nearly all the ports captured, the entrances were for the time being effectively blocked by sunken ships and craft of all sizes, in some cases piled one on top of another and in other cases double-banked in two rows. Inside all the ports without exception, wrecks of all kinds obstructed the navigable fairways and blocked up the berths alongside the quays. In addition, quays and dry docks were destroyed; cranes, lock gates, caissons, bridges were demolished and submerged.

It was the duty of the salvage parties attached to the Expeditionary Force in each of these ports to open up the entrance and clear away the wrecks obstructing fairways and berths. Here, again, in this type of work time was a major factor. It was necessary for Commanders-in-Chief to know how soon the port would be opened for ships of various draft waiting to be brought forward and how many berths would be available in each succeeding week. The Salvage Officer had the unenviable task of setting himself and his colleagues a target to reach. Failure to attain it would not be excused by attributing the delay to an act of God or the King's enemies, which is the excuse usually found in salvage officers' reports when their unsuccessful operations are unobserved. In the present instance the Army ashore and the Navy and Merchant Service outside the port all watched and waited impatiently whilst the salvage party did their bit.

At Tripoli eleven ships of 1,000 to 5,000 tons gross were sunk stem to stern from one pier head to the other across the harbour entrance. On top of this block and on either side numerous small craft—barges, tugs, launches, floating cranes—were sunk in a tangled mass of wreckage. It was almost impossible to get a motor-boat either through or over the top. Ships were waiting outside with supplies and equipment necessary to support the advance of the army. Five days after the capture of the port a breach had been made through the blockships wide enough and deep enough to permit the passage of L.C.T's, on to which the ships were unloaded. On the eighth day there was a depth of 14 ft., sufficient to allow small coasters to enter; and on the fifteenth day a vessel of 15,000 tons drawing 24 ft. passed through in safety. The opening of this gap was accomplished by first demolishing one ship completely with explosives and then lifting and swinging aside two others. No special craft were available for this work.

At Marseilles the main entrance to the harbour was blocked by eight very large ships. These were not strung across the entrance but sunk fore and aft in line with the Channel. Some were piled on top of the others forming what must have appeared to the enemy and to us at first sight a very effective block. Nevertheless within fifteen days from the date of occupation Liberty ships were passing through safely.

Naples was one of the few ports in which no attempt was made to form a block across the entrance, but the whole of the anchorage was strewn with wrecks and no berth remained unobstructed and nothing remained afloat. In this port alone the salvage parties cleared away 170 wrecks. These included destroyers, tankers, tugs, sloops, corvettes, trawlers, floating cranes, barges and schooners.

The diving work in these ports frequently proceeded simultaneously with mine sweeping operations both inside and outside the harbour entrance. On one occasion

a mine was exploded 350 yards distant from a wreck on which two divers were at work. Both were knocked out, but one was back at work inside two hours and the other resumed work the following day. On another occasion a mine exploded close to a wreck and completely demolished two diving boats which the divers and their attendants had quitted only a few minutes previously. Risks of all kinds had to be taken with both men and craft, but the general morale and keenness of all concerned made it possible to continue work at full pressure until the task was accomplished.

For the campaign in Normandy a large and mixed fleet of salvage vessels, lifting craft, rescue tugs and wreck dispersal vessels of all sizes and types was assembled, stored and equipped, and it has been fully occupied ever since D-day. The great variety of salvage, rescue tug, harbour clearance and wreck dispersal work to be found in these continental waters at present provides a paradise for wreckers and a happy hunting ground for salvage men which will long be remembered as the realization of their greatest ambition and most extravagant dream; for although a ship sunk, damaged, or in distress may by some be regarded as a deplorable occurrence, to salvage people, it provides the opportunity for practising their art, and their sentiments in this matter are not vastly different from those of the surgeon seeking to improve his practice.

BRITISH SALVAGE AFTER THE WAR

It is estimated that the number of vessels sunk or destroyed by the enemy in the ports and waters of occupied countries and elsewhere will provide enough work to occupy all the salvage resources of our own and allied countries for at least ten years hence. We will have on the termination of hostilities the finest and largest fleet of salvage ships and craft available anywhere, a great amount of special equipment and a surplus of skilled and experienced salvage personnel. I think you will agree that it would be deplorable if all this which has taken so much time to build up, and for which use might still be found, were to be dispersed or sold abroad after the War.

There will be very little salvage work to be done at home, but there are possibilities here of not only fostering a national industry but of turning it into an export business and we are being constantly reminded that all our post-war efforts must be concentrated on building up a larger export trade than we ever had before. This salvage business could bring in dividends from abroad, give employment to many British Merchant seaman, and provide a training ground for officers and men of the Naval Reserve.

The speedy rehabilitation of Continental and Mediterranean ports is a matter of some consequence to British shipping interests and to Underwriters; but, unless some disinterested support is given to British Salvage business, it will probably decline as it did before and we will be confronted again with the spectacle of foreign-owned salvage ships and tugs using our ports to ply their trade on our doorstep.

It has been said that the only thing which history teaches is that history teaches nothing, but it is to be hoped that the planners of the future will remember that part played by the Fleet Salvage parties in amphibious operations, and make provision for them in good time in case another war commences with a sea-borne invasion of enemy territory or an all-out enemy attack on our ports.

DISCUSSION

CAPTAIN H. NALDER, R.N.: From your most interesting lecture, it is clear that there is a close link between Salvage and Naval Damage Control requirements. The

former in fact commences when D.C. can do no more, due to a warship's limited resources. Two questions therefore arise.

First, is there any recorded experience of salvage work which could be made available to Service personnel under such headings as water-removal methods (including the use of air pressure); under-water repairs (including welding and burning); diving; towing a ship with reduced stability; use of explosives; beaching, etc.

Secondly, are there any special salvage requirements which, if better known to the Service, could be better provided for prior to the arrival of Salvage assistance?

THE LECTURER: I am afraid there is nothing existing in written, or rather collected form. There are quite a number of records of different types of work that have been carried out, including welding, and of different methods used in salving vessels. There are also records of unsuccessful methods, which are very interesting, but at the moment they are not collected, and it would be very difficult to get them together just now.

As regards your second question, do you mean the method of determining the weakness of the ship, or the weakness of the organization? I think it can only be determined by the examination of cases, noting whether the work is carried out efficiently or not. In the Salvage Department we have a very complete record of cases as cases, but it is more for the purpose of compiling accounts and making claims than for giving technical details. In due course we shall be able to collect quite a lot of technical information from individual salvage officers, giving their actual and practical experience. But I cannot say that that collection is in contemplation at the moment.

CAPTAIN E. ALTHAM, R.N.: Some years ago we had a lecture here on the raising of the German Fleet scuttled at Scapa Flow, and the Lecturer then made it very clear how great a part compressed air had played in getting those ships up, even ships of the largest size. I also remember an article in the JOURNAL in which a young officer who had been associated with them described very vividly the arrangements made to raise the old battleship "Emperor of India," which had been used as a target ship. She had sunk upright in comparatively shallow water, and it would seem to have presented a comparatively simple salvage job. The first efforts to patch and pump her out, however, entirely failed to get her up. Salvage experts were then called in. They used compressed air to blow the water out, and up she came.

I gather from the Lecturer that it was not until 1943 in this war that compressed air was being introduced fairly generally, following on the excellent results obtained by the Eagle Oil Company to salve or to safeguard their tankers. I would like to know whether there was any technical reason why that seemingly well-established method could not have been adopted earlier in this war, with, one would imagine, very effective results in saving a great many ships which may have gone to the bottom for lack of it?

THE LECTURER: As far as I know, there were no really sound technical objections to using compressed air on tankers whatsoever. It could not be applied to all tankers without special provision. Steam tankers, for instance, do not have an air compressor installed as part of their machinery. Motor tankers do, and it was quite a simple matter to connect the air receiver in the engine room of a motor tanker to the steam pipes leading to the tanks, thereby making it possible for air to be introduced into the tanks when damage occurred. The cost of a fitting of that nature would probably have been about £10 or £20.

One other objection was offered to the principle in general, and that was that if a tanker were torpedoed in the stern you would not have any compressed air at all. So to counteract that it was suggested that, in addition to the air compressor aft, the tanker should also have an additional portable air compressor forward, situated under the forecastle head or in any other convenient position, so that the tanker would have to have both ends blown to pieces before it would be impossible to use air. It may

have been the cost of the additional compressor which had something to do with the delay in the general adoption of the scheme.

MR. T. THORPE, R.C.N.C.: I remember a very interesting paper read in 1939 by Mr. H. Thomas to the Institution of Engineers and Shipbuilders in Scotland. He pointed out a very sound flotation principle. Captain Polland referred to the use of compressed air to restore buoyancy, but, of course, there is a little bit more than buoyancy in flotation. The other requirement is stability, and a big point was made on that in Mr. Thomas's paper. I am rather interested in that connection in Captain Polland's reference to a tanker, which he said had fourteen compartments out of twenty-seven bilged. To knock out half the length of a ship, and therefore lose half its water plane area presumably should have brought the stability question right up to the top, because the ship might have had quite a lot of buoyancy and very little stability. I should like, if I might have it, a little more detail with regard to that particular tanker, because I think the stability question is really what has been at the back of the Director of Naval Construction's mind when he has somewhat resisted the introduction of compressed air systems in H.M. ships. The Damage Control Organizations in H.M. ships do not go in so much for compressed air as one might have been led to expect from the lecture this afternoon.

THE LECTURER: I can give Mr. Thorpe full details if he will come along to see us. We have the complete story of the tanker in question, with exact details of the damage. You will remember that tankers do operate with very little freeboard, and normally the tanks are full of oil when they are in a stable condition.

MR. THORPE: Oh, yes.

THE LECTURER: I remember the paper to which you refer, read by Mr. Thomas, and also his remarks about compressed air. I also remember the remarks which were made in the discussion which followed by the Director of Naval Construction, and I think the point he made there was not so much about stability as about the difficulty of controlling compressed air.

MR. THORPE: Both points were made.

THE LECTURER: In our experience of tankers, there is very little difficulty in maintaining control, provided you know exactly what is happening inside the tank. But it is quite a simple matter to ascertain what is happening by planning your piping correctly and fitting valves so that you can shut off pressure or put on more pressure, and by having pressure gauges fitted to give you the proper waterline and the pressure. In the raising of the German Fleet at Scapa Flow I do not think they found any difficulty at all in maintaining control, because they knew exactly what they were doing. I think the same thing applies to every job. If you do not know what is happening inside a boiler or inside a tank you may expect trouble.

CAPTAIN ALTHAM: Perhaps this is carrying the discussion into rather technical channels, but I think it would be interesting if, in simple language, it could be made clear just what is the relation between buoyancy and stability in this connection. Is it argued that although the use of compressed air has been proved to be a safe and sound system in relatively calm water when you are simply going to raise a ship and tow her into harbour, it might present certain risks in a seaway when the question of preserving stability becomes more difficult? Also is it considered that a system which has proved invaluable for keeping damaged tankers afloat would not be of use in warships?

THE LECTURER It is quite possible there may be something in what Captain Altham has said, because when using compressed air in a damaged compartment and in a very rough sea, the buoyancy will alter according to the volume of water displaced, and the volume will be altered by the water pressure. The pressure will be increased by increase of depth—reduction of freeboard; that is, when the ship rolls in a seaway, the increased head of water will compress the air and reduce the volume or the buoyancy.

But I do not think this would have very much effect because of the very small compartments into which most tankers and warships are now divided.

THE CHAIRMAN

I would like to add to Captain Polland's answers to the Damage Control School questions just two small points. I think we ought, perhaps, to get together a little more. We do co-operate, of course, because Captain Nalder actually gives the benefit of lectures to some of our salvage officers when under training. We get that benefit, and if we can give anything in return we shall be very glad to do so. I will promise to look into that when we get back.

As regards the tankers getting their emergency compressed air equipment, I would like to make clear that that is entirely outside the province of the Admiralty, and I myself am not aware that there are any technical reasons for stopping it, and the Admiralty did everything in their power, with a certain amount of success, to reduce the delays that took place.

If I may make a few general remarks, Captain Polland will be the first to assure you that there is no mystery about salvage at all, but I think you will agree that to take charge of a complicated salvage operation does require a certain amount of experience and knowledge that is not usually found in one man. It requires a lot of practical seamanship, practical marine engineering, a knowledge of salvage equipment pumps, under-water cutting, above-water cutting, a knowledge of ship construction and a good knowledge of stability, air compressors, patching under water and diving. You do not get all those in one man as a rule. And salvage in peace time is very small; sailors do not make a constant habit of running their ships aground. Consequently, there are very few what you might call expert professional salvors. Then when war comes along there are tremendous commitments, and we have to expand every organization enormously, and build it up round a handful of experienced salvors. Some of them are general managers of salvage firms, or salvage officers of the firms, and others, like Captain Polland, are holding a commission in the Navy. This small band—scattered over the world as well as at home—are the men who have borne and are bearing most of the burden of the heavy salvage work, and they are also the men who have taught and are teaching all the new, younger men, who have been brought in. It is not very easy to salve a ship that has a 30 deg. list and her decks covered with ice in a snowstorm, particularly when you are getting on in years. To go to the other extreme, you may be salving a ship in the heat of the Red Sea. We owe a very deep debt of gratitude to these men. They have been doing it for five years and they are doing it still.

Salvage in general in peace time is a commercial business and it is not the concern of the Admiralty at all. I heartily support Captain Polland's plea for the retention and maintenance of all British salvage resources. It is undoubtedly in the national interests that they should flourish and should be in an efficient state to help the war effort when war comes. In war time the Admiralty are bound to direct salvage in some form or another, and they have the definite responsibility of providing salvage resources on a naval footing for stations abroad and for expeditionary forces and, as far as the Admiralty is concerned, that means that there must be adequate preparation in peace time, so that this organization can be put into force on a naval footing immediately war is declared, just like any of the other naval war services.

(The Lecturer then showed a number of lantern slides illustrating his subject.)

The customary votes of thanks were put to the meeting and carried by acclamation.

PHOTOGRAPHIC RECONNAISSANCE AND INTELLIGENCE

By Group-Captain P. J. A. Riddell, R.A.F.

On Wednesday, 22nd November, 1944.

Air Marshal Sir Richard H. Peck, K.C.B., O.B.E., in the Chair.

The Chairman, in opening the meeting, said: We are going to hear to-day Group-Captain Riddell talk about photographic reconnaissance and interpretation. It is a wonderful story and is indeed a romance of achievement in this war. Group-Captain Riddell is the chief of staff to the formation which is the parent of photographic reconnaissance, so that he is speaking as a man who is right in it and knows all about it.

LECTURE

At the outbreak of hostilities in 1939, no special photographic reconnaissance organization, as we know it to-day, was in existence. The necessity of this type of reconnaissance was, nevertheless, fully appreciated and, as existing facilities in France soon proved to be inadequate, the difficult task of building a suitable organization from scratch had to be accomplished. The full requirement had, however, been anticipated and work had already begun to develop the necessary aircraft and camera installations. It was realized that it would be necessary to obtain information from the very heart of Germany itself. The answer to this rather difficult problem was to find an aircraft which could fly sufficiently fast and sufficiently high to avoid interception and which had, at the same time, the endurance to allow it to reach distant objectives. The F.24 air camera, capable of fully automatic control, permitted the use of a single-seat aircraft and the choice fell upon the Spitfire, the—then—new fighter type.

The Ministry of Aircraft Production allotted two Spitfires for this purpose, and they were fitted with F.24 cameras mounted beneath the wings and extra fuel tanks. The first of these aircraft took off on 18th November, 1939, to photograph Aachen, but failed to cover its objective, obtaining photographs of an area on the Belgian side of the frontier.

It was then accepted that the new high flying technique was essentially right. Subsequent developments proved this decision to be correct but, initially, many difficulties were encountered and had to be overcome. The most important of these was the necessity of adequately heating the cameras to prevent freezing and the formation of condensation on the lenses. It was also found that the extreme low temperatures encountered caused the film to become brittle and consequently to tear. The initial method of providing the necessary heat was to mount the cameras in the wings sufficiently near to the engine to receive its heat. Later, when the cameras were built into the fuselage of the aircraft, electric heaters were introduced, these being ultimately replaced by a system whereby a closed camera compartment was provided, into which hot air from the engine was fed. The imperfect design of the early oxygen apparatus was also a source of anxiety. Early in the experimental stage, a pilot lost consciousness at a great height and managed to regain control only after his aircraft had spun down twenty-seven thousand feet. Improvements to the apparatus, and experience, minimised the danger in a very short while.

The difficulty responsible for the failure of the first experimental sorties was that of navigation which the pilot, being alone, had to manage himself. It must be realized, moreover, that a Spitfire pilot at operational altitude is normally unable to

see the ground immediately below his aircraft and is obliged, in consequence, to navigate on detail some twelve miles distant. Careful training has now made the pilots of photographic reconnaissance Spitfires good pilot-navigators who can, with complete confidence, fly an aircraft up to six hundred miles from base with the aid of a map, a watch and a compass only.

Once the idea of a special high-flying photographic reconnaissance unit had been accepted and the difficulties of high altitude photography overcome, the organization began to develop rapidly. In February, 1940, the first flight of photographic Spitfires was sent to France to fulfil British Expeditionary Force requirements. At the same time, further experiments and improvements were being carried out in this country and, in March, 1940, the whole of the Ruhr was covered in the course of one sortie. A little later, on 7th April, a photographic reconnaissance Spitfire photographed Kiel for the first time. These flights were carried out without enemy interception and it was clear that the solution to the problem had been found, at least for the time being.

Reconnaissance continued to be carried out essentially for tactical purposes until the fall of France. This event marked the beginning of a phase of strategic reconnaissance which was to last for four years, during which time the obtaining and interpretation of air photographs became an exact science and an essential component of our intelligence organization. When our forces withdrew from the Continent, our intelligence services were suddenly deprived of the greater part of their existing sources of information such as the French Deuxieme Bureau, and the enemy was left in possession of large areas on which little intelligence was available. The main source of information remaining was air photography which had, fortunately, been developed to the point of being reasonably able to meet the requirements.

Up to that time, the contribution of photographic reconnaissance to intelligence had been so small and the facilities available so limited that the need for rapid expansion was very urgent. This expansion, although somewhat hampered by the necessity for directing most of the Spitfires coming off the production lines to Fighter Command, soon to be engaged in the Battle of Britain, was carried out and the Photographic Reconnaissance Unit (for short, P.R.U.) was formed.

During August, 1940, the number of aircraft available had increased to twenty, and September of the same year saw the first Spitfire specially modified for photographic reconnaissance work. On account of the amount of petrol this aircraft carried, it was popularly known to the pilots as the " Bowser." Shortly after the delivery of this aircraft to the Photographic Reconnaissance Unit it was flown on a reconnaissance of Berlin, but, owing to cloud, only the lakes immediately North of the city could be photographed. The pilot, however, determined to cover new ground, flew on to Stettin and obtained the first complete cover of that port and of the ports of Swinemunde, Rostock, Wismar and Travemunde, landing back after a flight of nearly six hours in an aircraft with no cockpit heating.

The period 1941 to 1943 was one of great technical development. More aircraft of the " Bowser " type came off the production lines incorporating further modifications, such as cockpit heating. At the end of 1941 the Mosquito aircraft was adapted to photographic reconnaissance and its contribution has been inestimable. Capable of great speed and of greater endurance than the Spitfire, it brought to the interpreters photographs of objectives which had never before been covered. Another advantage of the use of Mosquito aircraft was that an observer and more cameras could be carried, with a consequent improvement in navigation and target

location. The first application of the Mosquito aircraft was from a photographic reconnaissance base in Northern Scotland. The long flight across the North Sea, which had hitherto been made so frequently by Spitfires without an observer and radio, was a most hazardous performance. The Mosquito replaced the Spitfire most advantageously on such sorties and, from then on, flights to Narvik and the furthermost German Baltic ports were carried out on a routine basis. As more Mosquito aircraft were made available it became possible to establish a flight in the South of England, which operated deep into German-held Europe. Other detached flights were subsequently established in South-West England and at Gibraltar.

Throughout the whole of this period, photographic reconnaissance aircraft were modified in this country and flown to overseas theatres in considerable numbers. Such was the increased demand for photographic reconnaissance pilots and navigators that a special Operational Training Unit was formed in May, 1942. The flying staff of this Operational Training Unit are ex-operational photographic reconnaissance aircrew, so that the maximum amount of experience is passed on to the new intake, all of whom are now already experienced aircrew specially selected for photographic reconnaissance training.

DEVELOPMENT OF INTERPRETATION TECHNIQUE

No mention has yet been made of the interpretation of the photographs obtained. At the beginning of this war there were no highly trained interpreters in the Royal Air Force and there were, in fact, only about two or three officers working for Air Ministry and Bomber Command who had any knowledge of the subject at all. The War Office possessed one interpreter and the British Expeditionary Force in France was established with two officers at Headquarters to meet the total requirements of the Army. The interpretation carried out in the very early days was of a fairly elementary character and was closely allied to skilled map-reading, although a certain amount of detailed recognition was achieved. Here again, experience was the teacher and much hard work had to be devoted to intensive training, experiment and teaching. More and more officers, male and female, were recruited for photographic interpretation, and were trained as quickly as possible to a reasonable standard of competence.

The original conception of reconnaissance under war conditions was that photographs would be obtained from ten thousand feet and photographic equipment was accordingly designed to produce an adequate scale for interpretation of photographs taken from that height. When, without much preparation, aircraft started taking photographs from more than three times that height, with the same cameras, each photograph covered no less than forty square miles at a scale of 1:80,000, and it was quite impossible to extract the information required from such photographs. Thus the existing photographic equipment had to be completely revised, and new types of air cameras with focal lengths of 20 in. and 36 in. which provided photographs of scales adequate for exact interpretation.

Inevitably, however, such a major re-equipment, involving the design and manufacture of new types of cameras, lenses and other associated equipment, meant a considerable delay before satisfactory results could be obtained. Moreover, there was, for some time, a school of thought which contended that the problem could be solved by using the existing equipment and improving photographic materials so that a finer grain photograph would result, thus facilitating the enlargement of negatives to the scale and quality demanded by the interpreters. On the one hand,

therefore, some maintained that photographs of the scale 1 : 80,000 were useless for interpretation, while on the other hand there were those who insisted that the quality of photographic emulsions could be improved sufficiently to allow the photographs to be enlarged to the scales demanded. The latter school of thought, although basically wrong, were additionally supported by the fact that their contention required no re-equipping and was most economical from the flying point of view, since several thousand square miles of enemy territory could be covered without difficulty on one flight.

Ultimately it was proved to be impossible to enlarge negatives to any appreciable extent while still retaining the standard of definition required for accurate interpretation, this being largely due to the difficulty of entirely eliminating the "grain" from the photographic emulsions suitable for air photography. The problem was ultimately solved by the introduction of the 20 in. and 36 in. focal length lenses referred to earlier, which produced the larger contact scales required at the increased heights at which P.R. aircraft had to fly.

A separate section was formed in May, 1940, by taking over in its entirety a civilian air survey company, which included about forty personnel. This had the fortunate result of introducing into the Royal Air Force at a crucial moment a large number of personnel who at least understood the mathematics of air photographs and, by being able to identify natural objects, could interpret detail although they had yet to learn its significance.

Finally, on the collapse of France, our entire interpretation resources were pooled to form the first Photographic Interpretation Unit which was known as the Photographic Development Unit (Interpretation), for short, P.D.U.(I). Since this amalgamation, the whole of photographic interpretation for the Governments at War in this theatre has been carried out, with the exceptions which will be mentioned later, at one large Unit now known as the Central Interpretation Unit.

At the beginning of 1943, a welcome reinforcement to our resources was made by the first American Photographic Reconnaissance Squadron. This was soon increased by three further squadrons and others have arrived since. Large numbers of American interpreters, trained in the United States, were also sent over and the Central Interpretation Unit accordingly became completely inter-Allied. It should be mentioned here that our Allies had built up most of their organization and technique on the experience gained by the observers they had attached to our organization before the United States entered the War. The British Photographic Intelligence organization was not, however, radically changed by the arrival of our Allies, who adapted themselves admirably to the existing frame-work and collaborated whole-heartedly in the reconnaissance and interpretation effort.

The American Units were well equipped on arrival and were not long in taking full advantage of the operational experience of the British Units. Flying Lightnings and Spitfires, the Americans were soon bringing home photographs which were a valuable contribution to photographic intelligence. American interpreters, although lacking experience of conditions in this theatre, settled down to the business and took full advantage of the resources of the Interpretation Unit. The pooling of resources, manpower, and ideas, is an outstanding example of Anglo-American integration and co-operation.

After short experience, it was found necessary for some interpreters to work on photographic reconnaissance airfields in order to locate and report immediately on targets of urgent importance covered in the course of a sortie. The main

photographic interpretation unit came to specialize more and more on stragetic interpretation, carrying out long-term studies of the enemy's military, naval, industrial and economic activity. In fact, as photographic reconnaissance was developed and the number of photographs obtained increased, the extent and variety of information was such that it was soon found necessary for the main interpretation unit to be divided into specialized sections. This specialization was facilitated by the type of officer recruited for interpretation, as the painstaking, laborious study of photographs is best carried out by men with a good academic or technical background who are used to research work. The Central Interpretation Unit was, accordingly, strengthened as it developed by the enlistment of men who had in their civilian work specialized in particular activities or industries, such as shipbuilding, engineering, geology, mining and kindred subjects. Royal Air Force, Military, and Naval officers with specialized knowledge of their own professions and of the enemy's Services were also established at the Central Interpretation Unit which assumed an inter-Service character, although continuing to be administered by the Royal Air Force.

AIR PHOTOGRAPHY

The basic requirement of photographic interpretation for all purposes is the stereoscopic examination of photographs. In order to ensure that the necessary overlap for this purpose is obtained when an aircraft is photographing its objective, the automatic control of the camera is adjusted before the aircraft leaves its base. If the tactical conditions over the target require a re-adjustment the pilot can make the necessary alterations from the cockpit. The time-setting of the camera is determined by such factors as the estimated height at which the photographs will be obtained, the focal length of the lens employed, and the estimated ground speed of the aircraft.

The control of the camera is set therefore so that each photograph will include approximately 60 per cent. of the area covered by the preceding one, as it has been found that this overlap gives the best stereoscopic relief. The detail of an area covered on two vertical photographs taken at the same scale from different angles will, when examined under the stereoscope, stand out in relief. The recognition and study of such detail is therefore facilitated. It will be appreciated, however, that a single strip of large scale photographs provides only narrow and limited cover of an area. To overcome this limitation, an improvement was introduced by installing "split" cameras in photographic reconnaissance aircraft. These cameras were set side by side or one behind the other, each facing slightly outwards. The angle of the "split" cameras and the time-setting of the automatic control was so arranged that photographs were obtained giving both lateral and longitudinal overlap. The width of the area covered was consequently approximately doubled and, as a result, an even higher percentage of photographic reconnaissance sorties have been successful.

When an area has once been photographed and is photographed again at a later date, it is possible to examine the two covers comparatively and ascertain what changes, if any, have taken place. It is for the purpose of allowing this essential comparative study of targets and areas that a Central Library of all film negatives exposed over enemy territory is maintained at the Central Interpretation Unit. An example of the importance of photographic cover of targets being studied comparatively is provided by the instance, mentioned earlier, when photographs were first obtained of Kiel, on 7th April, 1940. It was noted that there was a very

large concentration of shipping in the port, but as no earlier cover existed, it was impossible to say whether such a state of affairs was normal. Later information has shown that the German preparations for the invasion of Norway had accidentally been photographed.

The Central Interpretation Unit issues various intelligence organizations with information obtained by stereoscopic examination of photographs in the form of routine and special reports; maps, plans, charts and target maps; contacts and enlarged prints, mosaics and models.

The Central Library retains a copy of all such material issued so that there is always available both the written and photographic history of the development of enemy activity in the areas photographed since the beginning of the War.

With regard to the provision of information, it should be mentioned here that three different types of interpretation are carried out. First Phase Interpretation, at the airfields from which photographic reconnaissance aircraft operate, consists of a rapid examination of the negatives or photographs, carried out as soon as possible after the landing of the aircraft, and the immediate issue by signal of information of urgent importance. Second Phase Interpretation is carried out by a special section of the Central Interpretation Unit and its aim is to amplify the first phase information by giving a general day-to-day report of the enemy's activity. All air photographs which have been obtained in each area during the previous twenty-four hours are cleared by this Section. In view of the large number of photographs obtained, the Second Phase Interpretation Section is of necessity large, and is split into sub-sections, each dealing with its own area. Third Phase Interpretation is concerned with purely strategic information and is performed by Sections specializing in certain subjects. Unlike the Second Phase, which covers the enemy's activity from day to day and which is given a wide distribution, the Third Phase consists of reports of a highly-specialized nature which are distributed only to the appropriate branches directly concerned at the various Ministries. As a general rule, Third Phase Reports give a complete picture of the enemy's activity in any one field. The number of sections engaged in this type of interpretation is inevitably large and includes the Damage Assessment Section, Industry, Communications, Future Operations, camouflage and decoy, wireless, target material, shipbuilding, aircraft production, and sections employed on long-term study of the subjects covered by Second Phase.

At this point it may be appropriate to mention other functions of the Central Interpretation Unit. The Ground Intelligence Section obtains information of the enemy war effort from all sources other than air photographs. This Section ensures that information received is checked by examination of photographs and is classified for accuracy. This classification is filed in a reference library for the use of the interpreters.

The Photographic Section is responsible for the production of photographs for distribution with or without reports, for mosaics, rotoprints and duplicate negatives. Anticipating the present requirements of the photographic material in this country, we set up an Allied organization capable of an output of seven million prints a month.

A Model Section supplies relief models produced from photographs for use in conjunction with operational planning. In the production of relief models, rectified vertical air photographs are enlarged to the appropriate scale for two-dimensional planning. Photographs are also examined stereoscopically to study land form in the third dimension, since the contour intervals given on maps are often insufficiently

accurate for the construction of a model which must show variations of contour between these intervals. Surface detail is then built on the model by constant reference to photographs, a plaster mould is made and any number of impressions, coloured naturally, can be produced.

Lastly, there is the Photogrammetric and Drawing Section which makes accurate measurements in three dimensions from photographs and is responsible for the preparation of drawn plans of all types.

SCOPE OF PHOTOGRAPHIC INTELLIGENCE

An air photograph is a precise document which provides a large amount of detailed and accurate information. As a source of intelligence, photographic reconnaissance is extremely rapid and comprehensive, as large areas can be covered in the course of one flight. It is also an objective source, for it is not easily influenced by false information deliberately inspired by the enemy.

To-day we are sending aircraft on strategic reconnaissance all over Europe. If we send an aircraft to cover a port like Gdynia as the primary task, there is no point in despatching the pilot with enough films to photograph that port only. The modern strategic photographic reconnaissance aircraft is equipped with up to five cameras, two of which have magazines which can obtain five hundred exposures each; two—two hundred and fifty exposures each; and one of one hundred and twenty-five exposures. Accordingly, one flight can produce 1,625 photographs, thereby enabling the pilot to photograph anything from fifteen to twenty-five different targets in one sortie.

Strategically, therefore, we may have a processing problem which involves 1,625 exposures on negatives size 8½ in. by 7 in., and 5 in. by 5 in.; which comes to about 900 ft. of film. Because of the depth of penetration of most of our sorties there is seldom good reason to sacrifice quality to speed of production, and it is usually more important to produce the best possible quality photographs so that the maximum information can be obtained. Nevertheless, the average time taken to process and print a full sortie is approximately three and a half hours. The First Phase Interpretation will take approximately one hour, so that strategic information will invariably be available in a maximum of five hours after the aircraft has landed, and much sooner, if of vital importance.

Tactically, the problem is a simpler one, since aircraft engaged on tactical photographic reconnaissance will not normally be operating more than one hundred miles behind the enemy lines and will usually be briefed for fewer targets. The processing problem is, therefore, a much smaller one and the information can be distributed in a considerably shorter time. The average tactical photographic reconnaissance squadron can provide wet prints three-quarters of an hour after an aircraft has landed and the interpreter should be able to send through the urgent information by telephone within the next fifteen to thirty minutes, or an hour to an hour and a quarter after the return of the aircraft.

The Germans are in no way ignorant of the value of this type of reconnaissance and, until our defences denied to them the opportunity of similar operations, they placed great trust in their own results. Consequently they take considerable trouble to plant false information in our way. To counter photographic reconnaissance is a vast undertaking on the scale of cover which we now encompass. Dummies may be constructed, but are unlikely to affect the overall picture, and even they are usually obvious.

There is, however, a debit side. Photographic reconnaissance is only possible when weather conditions permit, when the aircraft used have sufficient endurance to reach their targets and when enemy opposition does not prevent photography. Furthermore, the information obtainable from photographs is limited to what can be seen and interpreted.

The two main obstacles encountered by photographic reconnaissance aircraft in this theatre, have been the weather and enemy opposition. Of these two, the first has been responsible for the greater number of unsuccessful sorties, since no Royal Air Force activity is more dependent on weather conditions than photographic reconnaissance. After one of the earlier raids on Berlin, for example, it was necessary for thirty-five photographic sorties to be flown before the damage could be adequately assessed. Failure on this particular task had become so persistently routine, in fact, that on the thirty-fifth and finally-successful attempt, the pilot, finding a cloudless sky above Berlin, made no less than twelve runs, and stayed over the city for three-quarters of an hour. It must not, however, be assumed that the weather has in all cases prevented photography of important targets. Aircraft and cameras have been developed to allow low vertical and oblique photographs to be taken in almost all weathers and at almost all altitudes. This technique has been successfully applied, particularly in the case of small targets of which close scrutiny and detailed examination have been essential for example, the enemy's radio beam and wireless stations. Such methods of photography are, obviously, more hazardous and can only be applied when the request is really urgent.

Enemy fighters attempting to intercept our aircraft have in most cases been outwitted by the speed of the photographic reconnaissance aircraft and the skill of their pilots. Flak is particularly dangerous to reconnaissance aircraft since they have to fly straight and level over the target to obtain adequate photographic cover. Not once, but countless times, a photographic reconnaissance pilot has found his main target temporarily too " hot," and has left it to photograph a secondary one, only to return and finish his main job when opposition has subsided. The danger of flak is greater, of course, when it is necessary to cover targets spread over a large area and when several photographic runs are necessary. In the majority of cases, however, when the target is of smaller proportions, the photographs are taken and the aircraft has passed on its way to the next target before the flak becomes sufficiently accurate to be a real danger.

Since the Invasion, the enemy have been making even more determined attempts to stop photographic reconnaissance in Germany. Mosquitos on trips far into Germany have repeatedly been intercepted by jet-propelled fighters, which have superiority in speed. The only defence of the unarmed photographic reconnaissance aircraft has been violent evasive action until the enemy aircraft runs out of fuel or ammunition. Our aircraft have been chased and been subjected to repeated attacks for as much as forty minutes, sometimes having to seek refuge at ground level in mountain valleys, and on one occasion returning to base with one elevator, one aileron and no throttle control. An example of the way in which unarmed aircraft can penetrate into Germany and obtain information in spite of intense opposition is that of a Spitfire pilot who had to photograph from low level a heavily defended area in the Rhineland. He was attacked by two Focke-Wulf 190's and took evasive action, eventually going down in a spiral dive to tree-top height. One enemy aircraft following him down failed to clear the tree tops and crashed in flames. We subsequently claimed one Focke-Wulf 190 destroyed by unarmed photographic reconnaissance Spitfire. The next day the same pilot

returned at his own request to finish the job, and before starting to take photographs received a direct hit from A.A. fire, as a result of which he lost all elevator control. In spite of this he completed his photographic task, controlling the aircraft by the throttle only, and returned to base, in his own words " Safe, but late."

Air photographs alone cannot provide all the information required, since it would often be quite impossible to identify the exact nature of enemy activity seen without a lead from other sources. It follows, therefore, that photographic intelligence, although complementary to them, has not supplanted other sources of information.

The greater part of our sorties are, indeed, flown to obtain photographic verification of reports received from such sources, and much information in our possession might have escaped our notice without such reports. Often the enemy himself, inadvertently, tells us where to take photographs. For example, three years ago the Prague newspapers contained a number of advertisements for billets in the Brux area. At the same time, certain German engineering magazines contained advertisements for engineers to go to Brux. This unusual interest in a small Czech village suggested the construction of an industrial plant. Photographs were taken and a large synthetic oil plant was seen to be under construction. We know from experience that one stall in a synthetic oil plant of this type will produce approximately 50,000 tons of oil a year. Since, therefore, this works had fifteen stalls in various stages of construction, we could forecast that production would start at a 100,000 tons a year some two months later, and increase to a final capacity of 750,000 tons a year. During the next two years, the plant was photographed regularly, and the Germans added further stalls, so that in the summer of this year it would have achieved full production at 1,250,000 tons a year—equal to the output of a very large oilfield. However, in March, 1944, Flying Fortresses of the Eighth United States Air Force attacked the plant, damaging a vital part and depriving the enemy of a most important source of oil. We shall know, in spite of all the enemy can do, if and when it is necessary to strike again.

DISTRIBUTION OF PHOTOGRAPHIC INTELLIGENCE

Every photographic reconnaissance sortie is flown to obtain cover of specified targets for a specified purpose. When a request for reconnaissance is received, it is considered by an inter-Allied, inter-Service Committee, who assess its priority in relation to the outstanding programme, and thereafter pass it to the Group Headquarters which controls both Photographic Reconnaissance and Interpretation Units. This Headquarters issues detailed instructions to the units, and a sortie is flown to obtain the required photographs. On the return of the aircraft to base, while the magazines of the various cameras used are being unloaded and taken to the airfield photographic section for processing, the pilot is carefully interrogated by the Station Intelligence Officers. He gives details of the targets of which photography has been attempted, and of any unusual activity seen. In addition, he reports to the Meteorological Officer, who immediately sends details of the weather to the Air Ministry and to any other interested bodies.

The photographic reconnaissance pilot is in a unique position to collect meteorological information as he flies at a great height and can see all the cloud layers and systems, at great distances, thus enabling him to plot the information on a map. On several occasions, photographic reconnaissance pilots have been able to give the actual meteorological conditions of places as far away as Berlin only two hours after they have been over the city.

The aircraft track is indicated as precisely as possible on a map to show at which points photographs were taken, as this is of the greatest value to the Plotting Section of the Interpretation Unit. The pilot's report is immediately distributed to the Operational Commands in the form of a signal, one copy of which is sent to the Central Interpretation Unit as warning that a developed film will be received approximately three hours later. When the films have been processed, they are examined by the head of the First Phase Section, who winds them over a luminous screen. In the course of this examination, the negatives of the prints required immediately are marked, and the whole film is thereupon returned to the Photographic Section for printing. The marked negatives are printed first and the prints are sent to the First Phase Section for interpretation. The information thus obtained is issued to the operational commands in signal form, or by telephone if the urgency or the importance of the information so warrants. Prompt action by the operational commands on the receipt of this signal has on many occasions resulted in the destruction of a highly mobile target a few hours after it has been photographed.

The film, together with two complete sets of prints, is then sent from the airfield by special courier service to the Central Interpretation Unit. Here, immediately on receipt of the material, the film is classified and included in the film library. One set of prints is sent to the Plotting Section which, with the aid of the pilot's track, locates the whole series on maps, and forwards both the prints and "sortie plot" to the Second Phase Section. The second set of prints is sent to the section specializing in the type of information required. A report is prepared by the responsible section and distributed to the originator of the request, usually next morning.

It can be seen, therefore, that the same photographs are used at the Central Interpretation Unit for the preparation of two types of report—the routine activity report prepared by Second Phase and the special report prepared by the Third Phase. There are, in all, some ninety different types of routine and special reports which are prepared and distributed by the various sections of the Interpretation Unit. Each intelligence department uses the information contained in these reports to build up a general picture and appreciation of the enemy's war effort, which is in turn submitted to the planning staffs, who can decide on action to be taken. This strategic application of photographic intelligence has played a vital part in the preparation of operations in North Africa, Sicily, Italy and, more recently, in France.

There are, however, numerous examples of more immediate employment of information obtained from aerial photographs. The supply of photographic intelligence to operational formations is vitally necessary. For example, a routine watch is kept on all enemy-held ports and regular photographic cover allows the interpreter to watch the movements of enemy shipping, both naval and mercantile, so that the Admiralty and Royal Air Force Commands may be warned when and where to strike. All major units of the German fleet have been watched since the beginning of the War and their misadventures, including the recent blow to the "Tirpitz," have been due in no small part to information obtained from photographic reconnaissance. The type of shipping visiting enemy-held ports and their activity while in port is carefully studied.

Similarly, routine photographic cover of enemy airfields has provided information on the order of battle of the German Air Force, its intentions, develop-

ment and innovations. The enemy's industrial activity has also been carefully studied and its output assessed.

One of the main functions of the photographic reconnaissance organization is to locate targets for the aircraft of Bomber Command, and subsequently to assess damage caused by bombing. Not only is it possible to obtain from photographs the exact area of a target and its most vulnerable points, but also its defences in the form of flak, balloons, camouflage, decoys, and smoke generators. If the attack is to be carried out at low level, the best approach can be judged from stereoscopic examination of air photographs. All this information is obtained and supplied for briefing purposes, so that attacking crews are able to carry out their operations with the confident knowledge that they have been supplied with as complete information as possible. When the attack has been carried out, it is essential to know what damage has been caused, in order to decide if a further attack is necessary and, if so, where the new aiming point should be. A photographic reconnaissance sortie is accordingly flown in order to obtain this information. Should the target be considered sufficiently damaged in the first attack, it will be photographed again after a certain lapse of time to study reconstruction so that, if necessary, a new attack can be carried out. An example of this was the Renault works at Billancourt, near Paris. This plant was devastated by aircraft of the British Bomber Command in 1942, and when rebuilt, smashed again almost exactly one year later by aircraft of the American Bomber Command.

The work of the Model Section located at the Interpretation Unit is of value both for planning and for such operations as bomber raids. The technique of model making has improved with experiment and experience, and the material produced for the invasion of France would have seemed nothing less than amazing in the early days of the war. It is impossible for all the uses to which models are put to be enumerated, but they have been so widely and successfully employed that it is necessary to mention a few examples.

The attack on the Ruhr dams was carefully studied on models prepared from photographs. Models of this type lend themselves to the production of low obliques or cine-photographs of heavily defended targets ; and, by carefully arranged lighting, photographs of the target as it would appear at any time of night or day can be taken.

The invasion of Normandy was planned with the aid of terrain models supplied by the Interpretation Unit. These particular models were made of a substance similar to synthetic rubber, being flexible, unbreakable and not subject to distortion. They were, in effect, accurate relief maps embodying all the information obtained from photographs in the course of four years of constant activity over the areas concerned. Here again, it is possible to supply photographs for the use of landing parties, of the beachheads taken in light conditions similar to those at the actual time of the invasion.

Moulds are kept of all models at the Interpretation Unit, and each is given a reference number. The reproduction of models on request is, therefore, a comparatively simple process.

OTHER SOURCES OF PHOTOGRAPHS

No paper on Photographic Reconnaissance or Intelligence would be complete without mention of similar activities in theatres other than our own. It should be emphasized that the development of photographic reconnaissance has in no

way been confined to this theatre. The development and employment, indeed, began here, but in every theatre of operations and in every potential theatre of operations there is a photographic reconnaissance organization which basically resembles that in this country. In the Mediterranean theatre, for example, there are the Allied Photographic Reconnaissance Headquarters, both in Italy and in the Middle East, which are responsible for obtaining air photographs of areas which have by agreement been allocated to each. There is also a photographic reconnaissance intelligence organization in South-East Asia. The great majority of the British pilots and interpreters serving overseas have been trained in the Home Organization.

The exchange of photographs, intelligence reports and reports on development of technique is carried out between all photographic intelligence units, so that each is fully aware of the activity of the others.

All aircraft for the Middle and Far East are modified for photographic reconnaissance work by an Initial Preparation and Inspection Party, which forms part of the photographic reconnaissance organization, and are flown out by our Ferry Unit. This unit acts as a pool for all the pilots from the operational training unit, and despatches both aircraft and crews to the various theatres.

The Photographic Intelligence organization in this country is responsible for ensuring that all the overseas units are kept up to date and receive such material as they require. A Photographic Reconnaissance Development Unit has been formed to develop the tactical application of any new aircraft or cameras allotted for photographic reconnaissance duties. All new aircraft are tested by this unit for their suitability for photographic reconnaissance tasks and, if satisfactory, are tested for camera installation, performance and range, before being turned over to the operational squadrons. The Photographic Reconnaissance Development Unit also investigates any troubles or defects which may affect the operational aircraft.

Besides Strategical Photographic Reconnaissance Squadrons proper there are other sources of photographs which are used for interpretation purposes by the Interpretation Unit. Cameras are carried by Bomber and Coastal Command aircraft, and cine-cameras are carried by Fighter Command aircraft.

TACTICAL PHOTOGRAPHIC RECONNAISSANCE

When the land operations on the Continent were being planned, the photographic reconnaissance in this country was augmented by the formation of squadrons designed and trained to carry out photographic reconnaissance of a tactical nature. Experience in other theatres had already indicated the requirement and, long before the invasion of France actually took place, the organization was complete and ready to function. The Second Tactical Air Force and the American Ninth Air Force accordingly had photographic reconnaissance squadrons whose duty it is to operate in the areas immediately in front of the Allied armies.

These tactical photographic reconnaissance squadrons are independent of the strategic photographic intelligence organization. This does not, however, mean that there are no contacts or co-ordination of effort with the home-based strategic squadrons. On the contrary, the tactical squadrons rely to a great extent on the resources of the home-based photographic reconnaissance organization and ensure that all negatives are passed back when their tactical purpose has been served. The flying side of photographic reconnaissance is also co-ordinated with the greatest

care on an area basis, in order to avoid duplication. The armies in the field are, therefore, assured of receiving information on both the enemy's immediate moves from the photographs obtained by the tactical squadrons, and his long-term preparations from those obtained by the strategic squadrons.

The photographs obtained by the tactical squadrons and those reproduced by the home-based interpretation unit for tactical purposes are, in the main, interpreted by specially trained Army officers, although a few Royal Air Force officers are attached to these units for intelligence of peculiar importance to the Royal Air Force.

In modern warfare photographic interpretation is an essential feature of the planning and preparation of military operations in the field. The necessity for up-to-the-minute and accurate information on the enemy's dispositions has raised photographic interpretation to such importance that major attacks have been held up more than once to enable photographs to be taken and interpreters to examine them. The modern army, therefore, goes into battle with a complement of interpreters at each Headquarters, down to Division Headquarters. With the photographs taken by the Tactical Reconnaissance Squadrons, the interpreters keep their respective commanders briefed on the situation immediately at or behind the enemy's lines, watch the enemy's movements, his gun positions, machine gun emplacements, headquarters, wiring and mining, study the terrain generally and advise on the best roads for advance. By doing much of the work which, in previous wars and in the early days of this war, was done by infantry patrols, the interpreters with the armies in the field have saved countless lives.

As the first phase of the Allied offensive took place in the Middle East, the Allied Army Photographic Interpretation Unit there played an important part in the development of the interpretation organization with the army in the field. Owing, principally, to the great distance separating Cairo from the battle front in Libya, it was found necessary to detach a section of the unit to operate in Desert Headquarters area, and for similar reasons interpreters were detached from the Desert Section down to Corps. The success of these forward interpreters was such that, after the withdrawal to El Alamein, the principle that the forward troops required photographic interpretation was accepted and every endeavour was made to make available a photographic interpreter at each Divisional Headquarters. Shortage of trained interpreters forbade the allotment on a permanent basis of one interpreter per division, but this was recognized as the ideal to be achieved.

During this phase there was still one photographic intepreter at each Corps Headquarters, and a section remained at Army level. The latter, however, soon found that to operate efficiently the bulk of its interpreters required to be at the Reconnaissance Airfield, only one or two members of the section remaining at Army Headquarters for liaison purposes.

The provision of interpreters for the armies preparing to invade France was undertaken during the latter half of 1943. The interpreters for 21 Army Group were established on a unit known as 21 Army Group Photographic Interpretation Unit, which could hold sufficient interpreters for the provision of two per division, two per Corps, and a section at Army and Army Group level. The two sections at Army and Army Group level were originally intended to work at the Army or Army Group Headquarters, but Eighth Army influence finally caused these sections to be situated at the Army or Army Group Reconnaissance Airfields. At all levels, a direct liaison is maintained with the Intelligence staffs of the Headquarters.

CONCLUSION

I hope I have been able to give you some idea of the story of the development of Reconnaissance and Interpretation during the War. The application of this method of obtaining information to post-war problems is a matter which is already receiving our fullest attention. I trust I have also been able to indicate the importance of this branch of intelligence.

I should like to end by quoting to you the words of General Von Fritsch—Chief of the German General Staff at the outbreak of war. In 1938, he said: "The Military Organization with the most efficient photographic reconnaissance will win the next war." We hope that, although its development still continues, the Allied Photographic Reconnaissance organization is without rival to-day.

THE CHAIRMAN

The fact that no member of the audience has any questions to ask is a fine tribute to the comprehensive way in which our lecturer has disposed of all queries in advance!

I have one or two points to make. Group-Captain Riddell has succeeded in convincing us of the tremendous importance of what is still a new development in the form in which it exists to-day. One can judge its value by thinking back to the problems which faced the High Command by land or by sea when we did not possess this comprehensive system of reconnaissance. It is a commonplace of land warfare that the General must know what is going on "on the other side of the hill." We know also of instances in which fleets at sea, searching for the enemy fleet, have failed to get into touch even in the Mediterranean, let alone the Atlantic. Such chances of war are reduced almost to an exact science, weather and enemy permitting, by modern photographic reconnaissance. It is now possible for the commander to know, not merely what is going on on the other side of the hill, but what is going on on the other side of Europe.

This reconnaissance is an example of complete integration between the three Services, for it serves equally the Navy, the Army and the Air Force—both our own and those of our Allies. Here we have all three Services working together in the same organization and helping each other with their results. But these results cannot be attained for us unless certain requirements are met. Photographic reconnaissance depends upon having aircraft of very high performance which can go out and avoid enemy interference. It requires aircrews of exceptional skill, training, resources and physique, and it requires control by men who know the powers and limitations of air photographic reconnaissance. We must not forget those essentials. Without them we should speedily be deprived of vital information which is enabling us not only to beat the enemy and to find out where to hit him, but to do so with the maximum economy in human life.

You will, I know, join with me in according a hearty vote of thanks to our Lecturer.

The vote of thanks was carried by acclamation.

CAPTAIN E. ALTHAM, R.N., in proposing the vote of thanks to the Chairman, said, the Chairman's own remarks interested me very much from the naval angle. One of the things that an Admiral looks to photographic reconnaissance to tell him is the *result* of any engagement with the enemy's ships. If contact has been made by night or the attack has been made by carrier-borne aircraft, he may not know with any accuracy what actually has happened to the enemy. What he wants to know is what damage has been inflicted, what enemy ships have been damaged or sunk. It is to photographic reconnaissance that he has to look for that information, which may be vital to his future strategy and tactics.

The vote of thanks to the Chairman was then called for and carried by acclamation.

THE MINSK OPERATION: A PRELIMINARY STUDY

By CAPTAIN W. R. YOUNG, M.C., R.A.

THE stabilization which came to the Eastern Front in April, 1944, left the Germans holding a salient in Byelorussia between the towns of Vitebsk on the Dvina and Zhlobin some 160 miles, in a straight line, to the South. Beyond Zhlobin the Russian line had been pushed westward about 200 miles in the direction of Kovel; but this did not matter much since the line lay to the South of the Pripet marshes, which provided a natural protection to the German right flank. On the other flank the Russian overhang was not a pronounced one and, anyway, there was little likelihood of an offensive concentration being built up in the North while the Vitebsk "hedgehog" squatted on the junction of all roads and railways which led in that direction. So the Germans could confine their attention to the eastern face—we can hardly call it the apex—of their salient.

The main feature of their defensive system was the fortified bridgehead, some seventy miles long and up to twenty-five miles deep, which they held across the Dnieper in front of Orsha and Mogilev; and though, about thirty miles South of Mogilev, the Russians had thrust out a shallow salient to the western bank of the Dnieper, this was of no great importance, for Zhlobin, in the interlocking German salient, was a "hedgehog" which was a standing threat to the communications of any Russian force advancing from Rogachev. Any such advance, moreover, would soon come up against another "hedgehog" in Bobruisk.

The map[1] shows that the triangle, Orsha-Minsk-Zhlobin, is well provided with communications by road, rail and river. Indeed, a scale relief of the area would serve admirably as a cloth model for a Staff Exercise on the problems of feeding the front with supplies, positioning reserves, sealing off enemy penetrations, selecting intermediate defence zones or conducting a strategic retreat on convergent lines. But if we look outside the triangle we are faced with a less easily solved problem in the matter of Vitebsk. The town had long lost all positive value for the Germans as a hub of communications, since most of these were cut; and it may be asked whether the negative object of denying its facilities to the enemy was worth the risk of the loss of the troops who were left to garrison it. And then, again, if Vitebsk were to be abandoned, where should the switch line be drawn to cover Polotsk and to link up with the Dnieper defences at Orsha? It is probable, however, that these questions did not occur to the Germans in any insistent form. They believed in "hedgehogs" (von Leeb) and in "firm defence" (von Busch); they saw that a terrain of bogs and lakes and waterways would favour the defenders and would render difficult the wide deployment of the attacking forces; they had reason, in short, to think that in this last remaining corner of their Russian *lebensraum* they had established a line on which they could make a prolonged stand. Events, however, were to prove them wrong.

THE FORCES ENGAGED

We cannot, at present, do more than make guesses at the strength of the forces which were defending the Vitebsk-Zhlobin front in June, 1944. The Russians claim that they inflicted permanent losses—*i.e.*, in killed and prisoners—of 268,000 in the battle which is the subject of our study; which means that about 1,300

[1] See end of article.

effectives were destroyed per mile of front. But estimates of total strength cannot be based on "normal" casualty figures—if there are such things—when the operations include, as these did, three major encirclements.

About the Russian strength, however, we have some guide in the lists of Generals which appear in Stalin's Orders of the Day. It seems reasonable to conclude, when an Order names nine Major-Generals and two Major-Generals of Tank Troops, that nine infantry and two armoured divisions took part in the operations referred to.

By this yard-stick it seems that the Russians opened their Summer offensive in Byelorussia with forty-seven infantry and three armoured divisions; and that, in the course of the Minsk operation, twenty-five to thirty fresh infantry divisions were drawn into the battle as well as five or six armoured divisions and a cavalry corps of Kuban Cossacks. But it is a waste of time to elaborate these figures; for exact details of the orders of battle of the contending forces must already be recorded somewhere and they will, presumably, be accessible to official historians some time.

A "preliminary study," meanwhile, can only aim at presenting an outline sketch of the various operations which culminated in the capture of Minsk—operations which, though conducted by four armies over an area of 10,000 square miles, have an essential unity which entitles them to be regarded as a single battle.

The four armies or "fronts" were, from North to South:—

The First Baltic Front, under Bagramyan, which held the salient threatening Vitebsk from the North and North-West;

The Third Byelorussian Front, under Chernyakhovsky, which threatened Vitebsk from the South-East. This front extended as far South as to bring it opposite Orsha;

The Second Byelorussian Front, under Zakharov, opposite Mogilev;

The First Byelorussian Front, under Rokossovsky, which carried on the line past Zhlobin and along the 200-mile salient which led to Kovel.

First Baltic and Third Byelorussian Fronts

The battle opened on 23rd June with simultaneous advances by Bagramyan and Chernyakhovsky to complete the encirclement of Vitebsk. Bagramyan broke through on a twenty-two-mile front and pushed forward from twelve to twenty-five miles to reach the Dvina on 24th June. Chernyakhovsky broke through South of Vitebsk on a front of nineteen miles and had advanced sixteen miles by 24th June. Both armies had fanned out to extend their frontages to fifty miles and they were rapidly approaching each other. On 25th June, Bagramyan crossed the Dvina on an eighteen-mile front and joined hands with Chernyakhovsky on the Vitebsk-Lepel highway, the only remaining retreat route for the garrison of the "hedgehog,"—and five German divisions were cut off in Vitebsk.

The encircled troops resisted fiercely at first, but, after heavy bombardment from ground and air, they decided to break out towards the South-West, only to find all the roads firmly held. And, when the town fell on 26th June, the five divisions had lost 20,000 killed and 10,000 captured.

Bagramyan, having usefully co-operated in the trapping and destruction of the Vitebsk garrison, hereafter steps out of our picture to pursue his main objectives in the direction of Polotsk and the Baltic.

Chernyakhovsky, meanwhile, directed his Vitebsk divisions along the Lepel road in the wake of those which had already captured Beshenkovichi, thirty miles along that road, on the 26th. But the Vitebsk operation was soon seen to be only a minor part of the Third Byelorussian Front's offensive; for the assault North of Orsha, though it began with a break-through on a narrower front (twelve miles), was to have more fateful consequences. For through the breach came armoured divisions which cut the Orsha-Vitebsk railway on 25th June, reached the Orsha-Lepel railway on the 26th, and then turned southwards to establish themselves across the Orsha-Minsk road and railway. Thereupon simultaneous attacks were launched on Orsha from the North, North-West and, across the Dnieper, from the East; and the town was captured on 27th June. Its fall had an important effect on the Mogilev positions which Zakharov had been attacking for four days.

Second Byelorussian Front

Zakharov's start line was farther East than those of his neighbours to right or left, and his divisions, consisting mostly of infantry, had first to force the River Pronya and then to cover the twenty to twenty-five miles which separated them from the Dnieper. His break-through of the deep defences was on a twenty-eight-mile front and was achieved on 25th June. By the 26th his troops had reached the Dnieper North of Mogilev; by the 27th they had made crossings on both sides of the town; on the 28th they had spread out and crossed the river on a front of seventy-five miles, had stormed Mogilev and advanced beyond.

Zakharov's army, then, had gained important objectives, but its success had been due to hard slogging frontal attacks rather than to skill in manœuvre. In this area the German positions were protected by continuous water obstacles, which included a seventy-five-mile stretch of the Dnieper; and in none of the Russian reports do we hear of the enemy's retreat routes being cut. It is probable, indeed, that considerable forces got away by the road which runs from Mogilev to the Beresina, fifty miles away, and on to Minsk. But, as we shall see, Zakharov was to take his revenge on them later.

First Byelorussian Front

More spectacular results were, meanwhile, being produced farther South, where Rokossovsky, soon to be promoted Marshal, disposed of much larger forces than his colleagues of the Second and Third Fronts. Strategically he was well placed because he was already across the Dnieper at Rogachev and because his front line extended round the southern flank of the German salient. He was thus able to launch a converging attack, not only against Zhlobin—which was merely a hedgehog in a trap—but against the far more important position of Bobruisk.

He seems to have opened his offensive a day later than the others, on 24th June. Striking from South-West of Zhlobin his troops thrust forward in a line parallel to the Beresina to a depth of nineteen miles in two days' fighting. Fanning out from an original breach of twenty-two miles, they had already cut the railway running South-West from Bobruisk on 25th June, and they captured the sizeable village of Parichi on the Beresina on the 26th. By the 27th one section of this southern wing had closed to a point three miles South of Bobruisk; while another section had captured Glusha, fifteen miles to the West of Bobruisk on the Baranovichi road. (Zhlobin, incidentally, had been quietly mopped up on 26th June. Its capture was saluted with twelve salvoes in Moscow, but the Order of the Day only names one Major-General.)

Even more startling progress was made in this period by Rokossovsky's right wing which had advanced from his bridgehead North of Rogachev. Stiff resistance was met with in the first two days, but then an armoured division passed through, and on 28th June, Ossipovichi, twenty-two miles North-West of Bobruisk was captured. And, as a strong force from Rogachev had advanced on the " hedgehog " from the East, its garrison of five divisions was well and truly encircled. On 29th June, Bobruisk capitulated at a cost to the Germans of 16,000 dead and 18,000 prisoners, and its fall, marking a definite stage in the progress of the operations, will provide us with an occasion for taking stock.

Situation on 29th June

We left Chernyakhovsky on 27th June in possession of Orsha and advancing on a fifty-mile front between and including the highways, Vitebsk-Lepel on the right, Orsha-Minsk on the left. Profiting by the absence of a Dnieper obstacle between Orsha and Vitebsk, a tank army under Russia's most famous commander, Marshal of Tank Troops Rotmistrov, had poured through the broken defences and spread out over the whole of this area of woods, marshes, rivers and lakes. Its advance was surprisingly swift. Lepel was occupied on 28th June and by the 29th the Third Byelorussian Front was lining a thirty-seven-mile stretch of the Beresina North of Borisov.

Thus Chernyakhovsky on 29th June was as far westward as Rokossovsky, whose troops were driving on from Ossipovichi and along the Bobruisk-Baranovichi road. But Zakharov on that date was still thirty miles East of the Beresina. So the conditions for a double envelopment of the German forces retreating on Minsk were plain to see. That they were depleted forces is apparent from the Russian claim that in the first week of the offensive the German losses in killed and captured totalled 184,000. Of these Rokossovsky had accounted for 74,000 and Zakharov for 33,000.

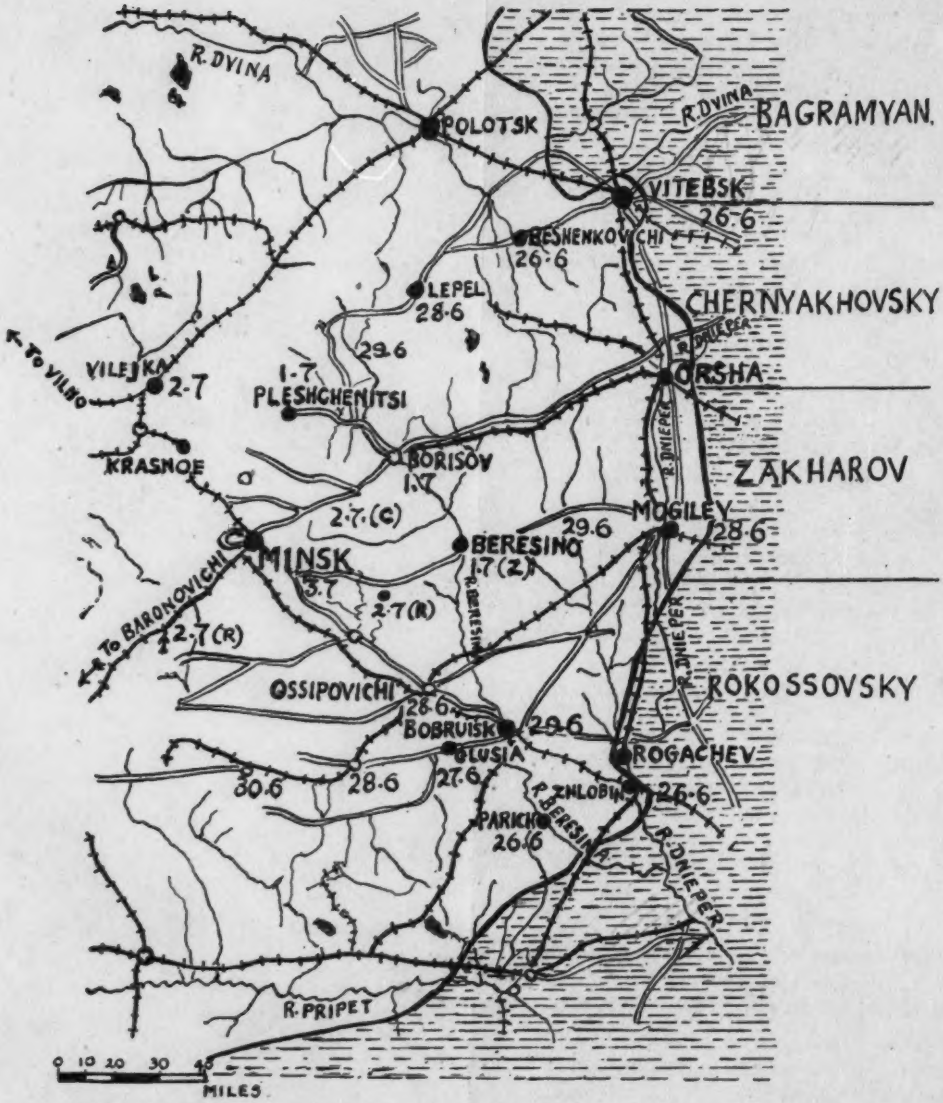
According to Plan

The operations proceeded as might have been expected. On 30th June the two arms of the great pincers thrust further forward. Chernyakhovsky closed up to Borisov along the main road from Orsha with his main forces, while tank columns to the North found ways of crossing the Beresina. On 1st July Borisov was stormed by an overwhelming force of infantry and armour, while at the same time other armoured regiments reached Pleshchenitsi, thirty miles to the North-West. On 2nd July two tank columns leaped forward forty miles to seize Krasnoe and Vileika, thirty and fifty miles North-West of Minsk, so cutting the railway to Vilno.

On the southern flank Rokossovsky had been thrusting forward along all the roads leading West and North-West and, on 2nd July, he too had by-passed Minsk and had sent two infantry and two Cossack divisions to cut the Baranovichi railway.

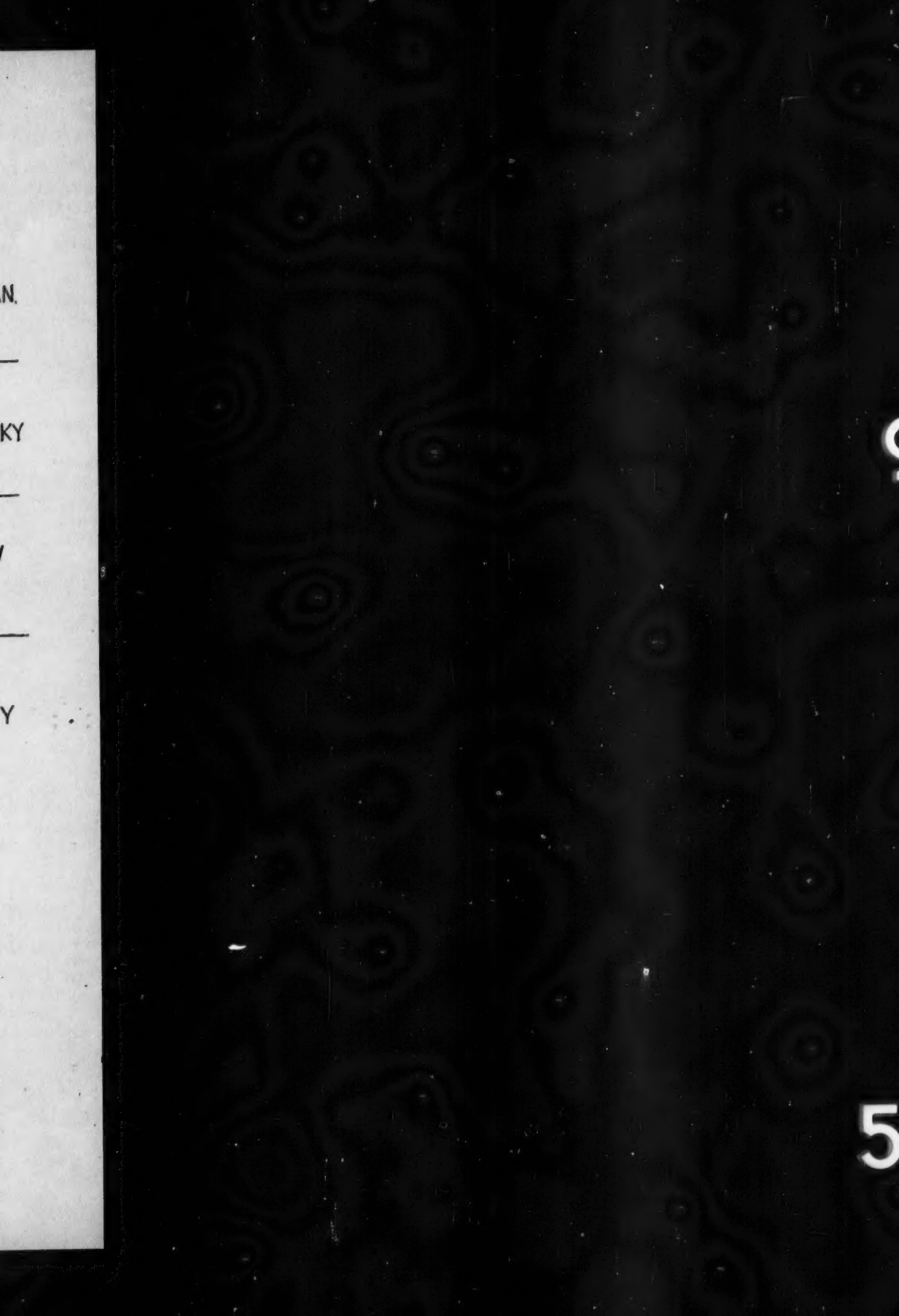
Meanwhile Zakharov, who had reached Beresino on 1st July, seems to have been held up there. But the armies on his left and right were now converging on his front, for Rokossovsky was already across the Beresino-Minsk road on 2nd July and Chernyakhovsky was only thirty miles away to the North. This inner convergence—pincers within the larger pincers—was to present Zakharov with the opportunity for revenge to which reference has been made earlier. For when Minsk fell, a large force of Germans found themselves trapped in the area East of the city; and on Zakharov devolved the task of " liquidating " the encircled divisions.

THE MINSK OPERATION



NOTE FIGURES SHOW DATES ON WHICH PLACES WERE OCCUPIED. e.g. BORISOV on 1 JULY

IN DOUBTFUL CASES THE ARMY ENGAGED IS INDICATED BY THE INITIAL OF ITS GENERAL. (C), (Z) or (R).



Fall of Minsk

The occupation of the Byelorussian capital on 3rd July was the climax of the eleven days' battle. Von Moltke once remarked that " the junction of two previously separated forces on the field of battle is the highest triumph of generalship " ; and, by this criterion, the capture of Minsk was a triumph indeed. For it was achieved by the junction not only of the two armies of Chernyakhovsky and Rokossovsky, but also of previously separated sections of those armies. Obhukov's armoured regiments from Krasnoe and Rotmistrov's four tank divisions from Borisov converged to make up the northern attack on Minsk ; while in the South Lieutenant-General Pliyev's Cossacks rode up the Baranovichi railway to meet two tank divisions driving up the road from Ossipovichi.

It is to be noted, too, that the forces engaged at Minsk were not large ; in fact, they were considerably weaker than those employed in the captures of Borisov or Bobruisk. They were, moreover, almost entirely composed of mobile formations—about six armoured and two cavalry divisions, with three infantry divisions included only in the northern group (and these were, presumably, motorized). This goes to show that a tactical triumph had also been achieved in that the parallel pursuit of the northern and southern armies had outstripped the retreat of the main enemy forces in the race for Minsk.

The fate of these main German forces had already been foreshadowed and the events of 3rd July settled it.

Conclusion

At this point it is fitting to bring to a close the story of this remarkable operation which, when fully documented, must take an important place in military history. The lessons to be drawn from it are many—the necessity of " fanning out " in order to exploit a superiority of forces, the value of the unexpected line of approach, the importance of co-operation within armies and between armies, the high dividends which may be expected from speed, particularly in pursuit and, on the other side, the futility of " hedgehogs." But space forbids the development of this theme.

It remains only to deal with the mopping up of the German divisions encircled " East of Minsk " ; but this is appropriately relegated—as it was in reality—to an Appendix.

Appendix. The Minsk Pocket

The Soviet communiqués provide no definite information about the location of the encirclement " East of Minsk." They do, however, tell us that the trapped units were the remnants of the 12th and 27th Army Corps and the 39th Panzer Corps and the tale of their destruction is a serial which covers the week from 4th to 10th July. Summarized, it records the loss of over 28,000 killed and 27,000 captured and that among the prisoners were seven Generals, including the two Army Corps commanders and Lieutenant-General Hofmeister, commander of the 41st Tank Corps. The last-named published in captivity a statement which throws considerable, though confused, light on the operations in the southern half of the front from the German point of view.

It seems that the butcher's work in the Minsk pocket was left entirely to Zakharov ; for Chernyakhovsky and Rokossovsky continued their advance, the one to take Lida, ninety miles from Minsk, on 9th July, the other to take Baranovichi on 8th and Slonim on 10th July.

ARMY TRAINING AFTER THE WAR

By Lieut.-Colonel R. J. A. Kaulback, *p.s.c.*, The Royal Irish Fusiliers

THIS article is by way of a footnote to a longer article on " Post-War Army Reorganization," which was published in this Journal for February, 1944. The former article proposed :—

(*a*) The reorganization of the Army on a divisional rather than a battalion basis, with the division as a permanent formation, with its own battalions, supporting arms and services drawn from the same part of the country.

(*b*) The separation of the Imperial striking force—the Army proper—from the garrison troops required for " Imperial policing."

(*c*) The maintenance of a striking force, of which perhaps one-third would be wholly Regular and two-thirds Militia officered and staffed by Regular soldiers.

Our present purpose is to examine how these proposed reforms would affect the provision of suitable training areas.

It is the essence of the scheme that training should be on a divisional basis, and that there should be adequate training areas where exercises can be carried out by all arms under realistic conditions using live ammunition. Many of the stations previously used, both at home and abroad, do not square with this policy. At home, battalions were commonly posted in accordance with existing barrack accommodation and without much regard to training grounds. This was no doubt largely because it was hard to get grants for building new barracks in better training areas. Abroad, stations for infantry at least were chosen to meet the needs of Imperial policing. There were therefore many single-battalion stations, or even split stations holding only one or two companies at a time. Troops at these stations had no chance to practise co-operation with other arms or to take part in formation exercises.

Such stations as these will not do for the future. The Standing Army, on a divisional basis, needs room for training on a divisional scale if it is to maintain the efficiency needed in modern war. So do the reserve formations. These must be kept organized and ready to expand rapidly if war is threatened, more rapidly each year as the tempo of war is stepped up. Forty years ago, we could complete the training of reserve divisions during the first year's fighting ; we cannot reckon on this grace in future. Reserves will have to be ready to take the field as soon as they have absorbed men recalled to the Colours. They can do this only if, in the years before war begins, they are trained on the same scale as Regular divisions.

From this we can see that our training requirements will be very large—far greater indeed than anything to which we were accustomed before this war began. Barracks and local training areas for up to twenty-five divisions may well be required. Great tracts of land will be needed for annual Army manœuvres, and also a considerable variety of terrain to enable all forms of operations to be practised.

The question which we must now face is where are these areas to be found ? Those of us who have lived in Great Britain during the past two years have some

idea what large formation training means and to what extent it can interfere with the normal life of the countryside. This inconvenience and loss of agricultural land may be accepted with resignation in war-time when it is inevitable, but will it be acceptable or even desirable in peace?

The British Isles are very densely populated, the country is highly developed industrially and agriculturally, and practically the only places where large areas of comparatively virgin land are to be found are Yorkshire, the Highlands of Scotland and Northern Ireland. But even here facilities are restricted and the compensation rates are far larger than the country should reasonably be asked to bear. Indeed, except for areas for recruit and individual training, the British Isles will clearly not meet our requirements and we must reconcile ourselves to finding our main training grounds overseas. Happily for us distances are now much shorter than they were even only a few years ago and it is possible to send and maintain divisions overseas very much more easily.

There are many possibilities as to where to send our troops and, if one includes the Dominions in the list, one can see tremendous benefits from the Imperial and emigration points of view which would arise from the interchange of troops between those countries and the United Kingdom. But this is a question which presupposes the formation of a single Imperial Army and, as there is little probability of that being realized in the near future, we must restrict our choice to those countries immediately under our control.

Apart from the Dominions and India, whose future is too uncertain to suit our plans, only one area will really meet all our requirements and that is the Middle East—in effect, Palestine, Cyprus, Syria (if this can be arranged with the Syrian Government) and perhaps parts of Trans-Jordan and Iraq. Egypt is not of much service, except for the specialized study of desert warfare. Topographically the Middle East is almost ideal. There are deserts and cultivated lands, plains and snow mountains, rivers and landing beaches, with a relatively sparse population and a temperate climate. It is country over which practically every type of warfare may be practised all the year round and where live ammunition can be used and large formations exercised with little inconvenience to the inhabitants.

Before the war the Middle East was selected as the most suitable base for our strategical reserve because of its position at the centre of two areas most vital to us, the Mediterranean and the Indian Ocean. The same strategic considerations are likely to continue for many years after this war and it would therefore suit us well to make it also the main training centre for our armies, more particularly as the existing barracks, camps and base installations enable us to do this with a minimum of additional expense.

Needless to say, a number of divisions will still be required elsewhere; the United Kingdom, India, Burma, the Sudan and possibly China will all make their demands; but these need not affect the main object, which is to find a primary training area for the mass of our Militia and Field Force divisions which would otherwise have to be accommodated and trained at home.

The suggested plan is to organize, in the United Kingdom, divisional depots where recruits would receive their basic individual training, and infantry, artillery, armoured corps and other technical schools in which the men, after leaving their depots, would learn the special work of the arms to which they have been posted. Once this initial training has been carried out, the recruit would be posted to his

division in the Middle East or elsewhere to complete his compulsory Militia service and should at the end of this period be fairly highly trained with a broad idea of the manner in which the main arms co-operate in battle. From this Militia material men might then be selected on a voluntary basis for service with the Regular divisions, and come on to a higher rate of pay in keeping with the higher standard of training demanded of them.

In conclusion, it is urged that what we most require is to escape from the rather parochial attitude which assumes that the reserve formations of the Army must be raised and trained at home. The Empire, if it is to survive, must retain its identity as a single strategic unit. Let us then make full use of this and the magnificent facilities for training that it affords. Not only will the efficiency of our formations be increased, but also our Militia soldiers returning to civil life at the end of their service will, for the first time in history, have had the opportunity to see for themselves the countries and people who go to make the Empire and to form their own opinions as to how essential these are for our future development.

THE GORDON BOYS' SCHOOL

By Lieut.-Colonel Graham Seton Hutchison, D.S.O., M.C.

SELDOM in our long history have the British people been moved as they were by the news of General Gordon's death on 26th January, 1885, and of the failure of the expedition to relieve him. The tragedy of Khartoum struck deep into the heart of the country, for its defender was a man whose name had already become legendary for his exploits in China, and as the long siege drew out, the tenacity and nobility of his character had impressed all grades of society.

When Queen Victoria heard of the fall of Khartoum on 5th February, she was much shocked and grieved, and with characteristic energy, she inspired and initiated a National Memorial. Both the Prince Consort and some of her Ministers informed her that there was no precedent for a Sovereign launching an appeal for funds to set up a Memorial to a commoner; but she was determined, and swept aside all opposition. On 20th July, a meeting at the Mansion House, attended by the Prince of Wales, resolved to establish a "Gordon Boys' Home" as the National Memorial to General Gordon. The Prince of Wales became President, with the three Royal Dukes of Edinburgh, Connaught, and Cambridge as Vice-Presidents, and with Field-Marshal Lord Napier of Magdala as the Chairman. Gordon had talked to Lord Tennyson about the project of a Home for destitute boys, and it was in pursuit of this ideal that the Committee founded what has been an institution of unique characteristics, making splendid progress during sixty years.

Education has been under the close scrutiny of Parliament and the subject of several Commissions during the past two years. The claims both of technical training and of higher learning in the arts have been put forward, and schools of all types have come under the searchlight of publicity. Culminating in the Education Act, 1944, the years immediately past have been most fertile in educational reform. It is now generally agreed that it is desirable to keep boys at school up to the age of sixteen years and beyond; that many boys are better suited to technical training after the elementary stages rather than being impelled to struggle with School Certificates; and that character training should play a far larger part in the educational scheme than has been hitherto possible except in the Public Schools and through such voluntary organizations as Cadets, Scouts or the A.T.C.

Gordon was essentially practical, with a belief that if a boy be furnished with a vocation in life his future economic position is assured. And, further, if to vocational training there be added a corporate, disciplined period during adolescence in which character shall be shaped to the ways of good citizenship, then nothing further can be expected of education. The sixty years in which the performance of the School can be examined and its product traced, demonstrate that the roughest types of boy can be fashioned to the refining influence of the boarding school. From top to bottom, its organization is military. The successive Commandants have always been carefully selected from the Army, and the boys in their smart uniforms displaying the Gordon tartan, with their military band, barrack rooms and ranks take an immense pride and delight in their ceremonies, drills and gymnastics which follow the plan of any regimental depot. Hand in hand with military training there proceeds individual instruction in the trade shops—engineering, tailoring, carpentering, boot-making, motor mechanics, building, gardening; and classroom

teaching in general subjects is conducted by an efficient staff, augmented by the Board of Education.

Over 1,500 boys have become soldiers of the Regular Army, and many also have joined the Royal Navy and our Colonial forces. More than 700 bandboys have been trained by the School, and the high level of musical performance has been demonstrated when the school band has broadcast or has filled public engagements in many parts of the country. The School is represented in nearly every Regiment and Corps in the Army, and it is only recently that in strong competition Gordon Boys have been placed 8th and 9th in the Entrance Examination for the Army Technical Training Schools.

The time comes in the history of every institution when it must be brought up to date and its buildings and furnishings give way to modern requirements. The School has been maintained entirely by voluntary contributions. During the past fourteen years, increased costs have made it impossible to balance the budget. In 1887, the cost of maintaining a boy was £22 per annum. Free admission is still given to as many boys as possible out of the general income of the Memorial; but to-day, the cost of maintaining a boy has risen to over £80 per annum. Less than 10 per cent. of this cost is met from contributions by boys in the form of maintenance fees; and the rest has to be found from invested funds, donations and legacies. I would certainly suggest that every Regiment in the Army should from the funds at its disposal maintain a boy in this School, which of course implies that the lad could be nominated by each Regiment concerned.

To some, in their bereavement, consolation may best be found by helping others less fortunate in worldly blessings, making of them living memorials to those who made the supreme sacrifice. The annals of this School record many such memorial nominations of boys.

If there were no other reasons why the Gordon Boys' School at Woking, Surrey, should engage our interest and win our charity, there is the fact that it trains boys in the virtues traditionally associated with the warrior's code to commend the appeal being made by Field-Marshal Sir Philip Chetwode, the Chairman, to refresh the School funds.

Writing from Holland on 10th October, 1944, Field Marshal Sir Bernard Montgomery sent this message: "No work is finer than the kind which cares for our British boys, and gives them training and opportunities for usefulness; it is they who will have to play the major part in rebuilding the post-war world, and they must be well trained for the task. The Gordon Boys' School does such work and is therefore worthy of our help and prayers."

CONTEMPORARY SOUTH-EAST EUROPE

By The Countess of Listowel

On Wednesday, 17th January, 1945, at 3 p.m.

Admiral Sir William Goodenough, G.C.B., M.V.O., in the Chair

The Chairman: Our Lecturer this afternoon brings to us first-hand knowledge, and that is a great asset. She was born a Hungarian. She is a champion of liberty. She is intimately acquainted with the countries of South-Eastern Europe—countries which have been torn from time to time by conflicting opinions, and countries for which we have an affection and for whose future we have a great hope.

LECTURE

WHEN discussing the problems of present-day South-East Europe, we have to bear in mind three facts: first, the geographical position of the Balkans; secondly, the racial composition of the people who live there; and thirdly, the two great civilizations which divide the people.

The Balkans form a bridge between the heart of Europe and Asia Minor. Any Power bent upon conquest can only break into, or out of Europe by controlling this bridge. From Turkey in the XVth Century to Nazi Germany in 1941, we have seen this borne out time and again. Russia's interest in the Balkans is determined by her desire to control the Dardanelles—the "key to her back door." This has been, and is, Russia's aim since Peter the Great.

From a racial point of view the people who live in Hungary and the Balkans are thoroughly mixed. The Slavs are in a numerical superiority; but let us remember that the Greeks, the Albanians, the Rumanians, the Hungarians, and the German settlers are all non-Slavs. Moreover, even among the Slavs themselves there are profound differences, of which we are reminded whenever we read about the tragedies of the Yugoslav situation. South-Eastern Europe is the meeting place of two great civilizations—that of Rome and of Byzantium. Until recently this difference was chiefly expressed by means of the difference between the two religions—Roman Catholicism and Greek Orthodoxy. It is a fact that the river Drina is the dividing line: roughly speaking all Roman Catholics live West and North of it, all Greek Orthodox East and South of it. As the part under Byzantine influence was also under Turkish rule until the end of the XIXth Century[1] the difference in its characteristics from those of the Roman Catholic parts was enhanced by the practical impossibility for the Ottoman subjects to educate themselves or to develop any political institutions. The situation in Hungary, which included Transylvania and Croatia, was much more favourable from the inhabitants' point of view.

From 1815 onwards, when the great principle of Nationalism swept over Europe as the main legacy of the French Revolution, the peoples of South-Eastern Europe began to awake and fight for their freedom. Re-reading the story of their struggles of a century and more ago, one is struck by the parallels with their present behaviour. For instance Finlay's *History of Greece's Liberation* provides more keys to the present troubles in Greece than the newspaper comments we receive in the course of a week.

[1] The final liberation of the Balkans was only effected in the Balkan War of 1912.

During the XIXth Century, the Turk was becoming weaker and weaker (he was commonly referred to as the "Sick Man of Europe"), and in his weakness he became more cruel than ever. This gave the Great Powers with ambitions in the Balkans both the opportunity and excuse to interfere freely in Balkan affairs. Foreign gold, consular intrigue, primitive people and a brutal oppressor were a combination ill equipped to prepare the Balkan people for responsible behaviour and the application of democratic processes as and when they attained their independence. No sooner had they all achieved it as a result of the 1912 Balkan war, than they fell out among each other, and fought the Second Balkan War in 1913, which left Bulgaria dissatisfied and vindictive. A year later the First World War broke out, the spark for it being provided by the murder of the Austrian Heir to the throne in Sarajevo (Bosnia)—that is in the Balkans. For the following four years South-East Europe was in flames, Serbia suffering the worst devastation.

In 1918 an attempt was made to settle Balkan affairs on a fresh basis, getting away from multi-national empires and, in the name of Woodrow Wilson's principle of "self-determination of the people," the new states were to harbour only citizens of the same race. It would be impossible even to attempt to analyse why this effort failed, let it suffice to mention that the Treaty of Trianon erred so much to the detriment of the Hungarians that Hungary was left a desperate country, with three millions of her kith and kin under alien rule, determined to achieve revision. The Croats, owing to the behaviour of the Serbs, who alone among Yugoslavia's component parts had an army, were soon equally dissatisfied with their role in Yugoslavia. The Bulgarians were also determined to rectify their grievances, and certainly did all in their power to trouble Balkan affairs—I need but remind you of the stormy history of Macedonia.

For twenty years Yugoslavia and Rumania had tremendous difficulties because of their determination to keep all they had gained at the last peace, despite the desperate resentment of Hungary and Bulgaria, and also that of large sections of their own population. On the other side Hungary and Bulgaria were more concerned with revision and obtaining justice than with any other single problem in their internal or external politics.

The rise of Hitler found the South-East European situation further complicated by the world economic crisis. All the countries within this area are predominantly agricultural, though Hungary has a flourishing textile and machine industry; Rumania, rich natural resources (Ploesti oil); and Yugoslavia large mineral deposits—copper, lead and chromium. In all these countries, from 1929 onwards, the sale of wheat, hogs, plums, tobacco, etc., was the main concern of the governments. Without it, the peasants would starve and their low standard of living be further depressed. Buying up crops, fanning existing dissatisfaction, employing first-rate agents, and—last but not least—encountering no competition in the shape of intelligent British business methods or propaganda ventures, the Germans found in every country men willing to work with and for them (many of them genuinely misguided at first), and they gradually constructed an excellent system of contacts and intelligence.

From September, 1939, to October, 1940 (when Italy attacked Greece), every person in South-East Europe prayed that the war might be localized in the West. The Governments worked like demons to prop up their precarious neutrality. When Greece resisted Italy's aggression so splendidly, it was obvious that eventually Germany would have to rescue her inefficient ally. Determined to clear the decks

for their attack on Russia, they "settled" with Yugoslavia and Greece in the Spring of 1941.

The Hungarian Premier, Count Paul Teleki, committed suicide rather than agree to the German army's march through Hungary to attack Yugoslavia, with whom he had signed a Pact of eternal friendship (which only goes to prove that "eternal" is a word even more dangerous in politics than in love). His successor—the pro-German László Bárdossy, not only gave facilities to the *Reichswehr*, but accepted from Hitler the return of the Bácska—a territory Yugoslavia received in 1919 at Hungary's expense, and which has a predominantly Hungarian population. But even Bárdossy refused to allow Hungarian troops to be used in operations against the Yugoslavs, even for police duty.

As is well known, the Croat regiments of the Yugoslav Army did not exert themselves to fight the Germans. It was their first chance to prove that they were not willing to die for a country in which they had been forced by the Serbs to play the second fiddle. Much later, when the Croat Marshal Tito called upon them to fight the Nazis, they have given a good account of themselves; but by then they were convinced that in a new, federated Yugoslavia they will have a real chance to live a full life.

Bulgaria, through the person of King Boris, decided to throw in her lot with the Nazis, because Hitler promised her Southern Thrace, with a sea-board on the Aegean, and Macedonia. At that time the overwhelming majority of the people were satisfied with this policy. At that time, too, let us remember, Germany and Russia were friends, and the Bulgarians felt that they were receiving their due with the knowledge if not the backing of the Soviet Union.

Rumania stood by, desperate because of her territorial losses to Russia (the Soviets had demanded and received Bessarabia, the Bukovina and a slice of Moldavia), to Hungary (Northern Transylvania was returned to Hungary by the second Vienna Award), and to Bulgaria (the Dobrudja). Having renounced her British guarantee, cut off from her former friends in the West, her rulers and her people dreaded the future.

With the British evacuation of Greece and Crete, the whole of South-East Europe was under the Nazi heel. The best proof of this was that Hungary and Rumania declared war on Russia at Hitler's order. Hungary's case was particularly interesting, as Premier Bárdossy did not dare call Parliament because he feared that the deputies might not vote in favour of his policy. Rumania had to be bribed by the promise of regaining Bessarabia, Bukovina and of receiving new territories in Trans-Dnistria (the Southern Ukraine) at Russia's expense. As for Bulgaria, Hitler could not bully King Boris to come into the war against Russia because the Bulgarian people were so passionately pro-Russian that they might have risen against the King and his government.

When Germany's 1941-42 winter offensive not only fizzled out but she faced disaster on the Russian steppes, the Hungarian Government became very anxious to get out of the War. Bárdossy twice refused Hitler's territorial offer (he was offered the Jaszlo sector of Eastern Galicia with rich oil fields) in exchange for an increased Hungarian war effort. Hungarian public opinion spoke quite openly against the War. The Rumanian public, which received detailed news from the front and was familiar with the losses suffered by the *Reichswehr*, was equally perturbed. Bulgaria stood out of the War firmly, but she took drastic measures in the occupation of Thrace and Macedonia. By the Spring of 1943, Hungary and

Rumania were fully prepared to come over to the Allies with flags flying if they landed in the Balkans.[1] Both countries were bitterly disappointed when, after Mussolini's fall, the Anglo-Americans did not immediately occupy Italy and then did not invade the Balkans. They had to wait for the appearance of another ally—Russia, to realize their desire to break with the Axis and come over to the United Nations.

King Michael of Rumania was the cleverest in working his country's passage home. He trusted a small number of ranking soldiers and Mr. Maniu and Mr. Bratianu—the two old democratic leaders. His military advisers worked out a simple plan to protect Bucharest. At a given date (21st August, 1944) they reversed all instructions worked out by the Germans: units ordered to go South were told to go North; those routed West were told to go East. As the original orders were the outcome of the detailed plans of German G.H.Q., these " alterations " led to fiendish confusion. Retreating German units clashed with mis-directed Rumanians, civilian refugees held up transport, and finally the Russians—supposed to be miles away—overwhelmed this frenzied, cursing, befuddled mass of Germans and Rumanians. Marshal Antonescu went to Rumanian H.Q. in Buzau, and saw what had happened. He put it down to panic. Back in Bucharest he reported to the King that Rumania would have to capitulate, but Michael had him arrested in his own palace before he could give warning to the Germans that he intended to quit the War. By the surrender of Rumania, thanks to the King's presence of mind, the Germans lost 250,000 men.

The Germans decided to watch every move of the Hungarians to prevent a similar surprise and disaster happening with their last " ally "—not a reliable one at the best of times, a fact which they demonstrated when, on 19th March, 1944, they occupied Hungary (after the last Lwow-Bucharest railway had been cut by the Russians). Thousands and thousands of good Hungarian patriots were clapped into prisons and concentration camps by the Gestapo, and more thousands of unfortunate Jews were sent to the death-chambers of Poland. Yet Hungarian public opinion asserted itself so strongly that by the end of July the pro-Nazi Premier Sztójay had to cede his place to General Lakatos, who again stood up for Hungarian principles. With the advance of the Red Army into Transylvania, and the obvious inability of the Germans to protect the lives and property of Hungarian citizens against Allied bombing, Admiral Horthy, the Hungarian Regent decided to sue for an Armistice. Unfortunately *he* did warn the Germans in the old-fashioned manner of his intentions. They reacted with energy. On 15th October, when the Regent's Armistice Demand was read over the Hungarian radio, they occupied Budapest with their tanks and put the Fascist gang of Francis Szálasi in power. The terror which these toughs organized is past description; even the German military commanders were shocked by it because it created strong anti-German and pro-Russian feelings in the population.

Fortunately, before the Germans deported Horthy, he managed to instruct Generals Mikós and Vörös to go over to the Russians and from there to call upon

[1] On 9th September, 1943, a representative of the then Hungarian Premier, Nicholas Ka'llay, signed Hungary's unconditional surrender at the summer residence of the British Ambassador to Turkey. Sir Hughe Knatchbull-Hugessen signed in the name of the Allies.

The news of this first, secret surrender of Hungary was published in *The New York Times* on 5th February, 1945.

the Hungarian army to surrender. Their call was answered and it was thanks to the collaboration of the Hungarian First Army that the Russians crossed the passes leading into Ruthenia so easily, and from there got down to the Hungarian Plain. Eventually, on 23rd December, a Provisional Hungarian Government under the premiership of General Béla Miklós de Dálnok was formed. This declared war on Germany on 25th December, and on 20th January it signed an Armistice in Moscow with the Three Great Allies.

At the present moment there are two sets of problems to be solved in South-East Europe: the military problems and the political problems.

The military problems, in view of the tremendous successes of the Red Army, are merely a matter of time. Budapest has not yet fallen and one-fourth of Hungary and the North of Yugoslavia are still in German hands, but once the Russians reach Berlin, this will be of no importance.

Much more complicated and more novel are the political problems of the vast liberated areas. These areas must be classed as countries which *resisted*, and those which joined the Axis as *satellites*. (Greece and Yugoslavia belong to the former group, Hungary, Bulgaria and Rumania to the latter.) There is only one single neutral country in this part of the world—Turkey.

The *resistance* countries have passed through the last four years under totally different conditions to the Axis countries; as a result they are in an advanced state of revolutionary development. The people were organized for resistance; they were armed with the help of outside (mostly British) support; there was no central government; their disciplined forces were destroyed early on, and when liberation came there was no authority to preserve law and order. In spite of the presence of Allied forces, political dissensions and personal ambitions (fed and encouraged from outside) now have full play and there is a terrible struggle for power. Most revealing is the fact that there is no difference between the programmes of rival factions. Take the programme of the Lublin Polish government and that of the Polish government in London, take that of Marshal Tito and of King Peter or of General Mihailovitch, compare the E.L.A.S., the Papandreu or the Plastiras proposals for making a better Greece, etc., and you will find the same slogans about "free elections," the "well-being of the people," "democracy," "freedom," "patriotism," etc. The only difference is in the names of the men who put them forward.

In the *satellite* countries, which broke with Germany when Russian forces reached their soil on a basis of properly negotiated and formally signed Armistice treaties, we see a completely different state of affairs. These countries have preserved the whole, or at least part, of their regular army. Bulgaria preserved all of her army, Rumania has sixteen divisions, Hungary at least eight. In view of the fact that the existing regimes sued for the Armistice (Regency in Bulgaria, King Michael in Rumania, Horthy in Hungary) their new governments are *normal* governments (not single groups of revolutionaries) and they are *democratic* in so far as all parties are represented in them: this, in spite of the fact that they are occupied by the Russians! From recently obtained information it is clear that the Soviet military leaders advise moderation in the liquidation of "war criminals" as undesirables these days are called in South-Eastern Europe.

The reason for this strange contrast is that in the *satellite* countries there was discipline to the last under strong governments, there were no extremist parties, the

Resistance Movements and their armed organizations particularly never came into being.

Therefore Bulgaria, Rumania and Hungary are not yet in a state of revolutionary ferment. (In Bulgaria there have been ugly incidents, but the Government had the situation under firm control.) Extreme Left-Wing parties are in the process of being formed, but this does not advance very quickly, in spite of the advice, support and encouragement they receive from abroad. Hence we observe the strange phenomenon that the guilty *satellite* countries boast of a favourable domestic situation, and even their foreign political relations are sound; while the *resistance* countries, which sacrificed everything to fight the Nazis, are rent by profound revolutionary troubles.

A solution to political problems of South-East Europe will, we hope, be found at the coming meeting of the Big Three. Russia obviously goes with very strong cards to that Conference, as she is physically present in practically the whole of that area, and has already incorporated parts of it, such as Bessarabia, Bukovina and Ruthenia. Britain is strongly interested in Greece, not only because that country is her " responsibility," but because of Imperial Communications which run through the Mediterranean, and also she is, jointly with Russia, responsible for Yugoslavia. America, as we know from authorised sources, has a plan for South-East Europe which, while guaranteeing Russian security, aims to secure real freedom for the little countries in the East of Europe. Only if a broad and generous point of view is agreed upon between the Big Three is there hope for a decent future in South-East Europe.

DISCUSSION

THE CHAIRMAN invited the audience to ask questions or offer remarks.

COLONEL J. KALLA (Czechoslovak Military Attaché): I should like to ask the Lecturer what significance South-Eastern Europe has for the defence of the British Empire.

THE LECTURER: When a Military Attaché asks me to give him an answer on a highly strategic question I feel very honoured indeed, and I am more conscious of my ignorance than ever before. I should have thought that peace was the main interest of the British Commonwealth of Nations. I think that peace in South-Eastern Europe is a matter of prime importance to the British Commonwealth, and that peace along one of the main routes of Imperial communications is another matter of importance to the British Commonwealth, but I do not pretend to know anything about strategy.

THE CHAIRMAN

The question which was asked about what South-Eastern Europe had to do with the British Empire was a very pertinent one. We know very well that many people think we have some sort of ulterior motive behind all our political moves in this country, and it is not easy to convince them that we have not. Perhaps you noticed that Lady Listowel said that before the War the Germans were constantly trying to impress and engage the attention of the people in South-Eastern Europe, and they had a considerable number of Press attachés and agents of all kinds while we had none. It is quite true that we are at times very careless about that sort of thing, but I hope and believe that largely comes from the desire of this country to allow things, so far as we can, to take their own course and not to attempt to acquire an undue or improper advantage over other people.

As Lady Listowel told us, the majority of the people in South-Eastern Europe are agricultural peasants. I do not know how high their educational standards are, but I do not suppose that a large number of them know the difference between what is English and what is, for instance, Scandinavian. I am quite certain of one thing, and

that is there are a large number of people in this country who do not know the difference between Rumania, Ruthenia, Macedonia, or any other countries whose names have the same sort of ending, and that is not confined entirely to agricultural labourers in this country. I dare say you all remember the story of many years ago, when there was a question whether we were to let the Dutch have Java or not. The Colonial Secretary of the time said to his secretary: "Where is Java?" and his secretary replied: "Oh, Java is a little country in the West Indies where they make jelly." "Oh, then let them have it," said the Colonial Secretary!

I do hope that people who believe that this country should take part in political discussions in South-Eastern Europe will attempt to learn something about that part of the world, and I do not know anyone who is better able to teach them about it than our Lecturer this afternoon.

I ask, as you asked, what is the solution? Is the solution to be a greater knowledge by each particular country of its own problems and of its own people and a real desire on the part of each country to live amicably side by side with its neighbours? Or is the solution some arrangement which these countries must make themselves, by which they will be more and more separated and segregated one from the other? The latter, to my mind, would be a very backward policy, and we can, I think, all look forward to the day when, by a genuine desire on the part of each to give more and claim less, there may be a new era of friendship which will lead to peace in the future.

I feel, Lady Listowel, if you will allow me to say so, that young people like yourself, with many years of useful life before them, will be able to find some kind of solution in the future for the problems of what have been very distraught countries in the past.

THE CHAIRMAN proposed a vote of thanks to the Lecturer which was carried by acclamation.

CAPTAIN E. ALTHAM, R.N., in proposing the vote of thanks to the Chairman, said: It has been alleged that the Navy goes round the world and never sees it, but anyone who knows Admiral Sir William Goodenough would never say that of him. We have been particularly fortunate, I suggest, in having not only the senior naval member of the Council but also a late President of the Royal Geographical Society to preside over this particular Lecture by the charming lady who has given it. I hope you will show your appreciation in no uncertain manner.

The vote of thanks was carried by acclamation.

THE INTERNATIONAL SITUATION

THE THREE-POWER CONFERENCE IN THE CRIMEA

A Conference between representatives of Britain, the United States and Russia, headed by Mr. Churchill, President Roosevelt and Marshal Stalin, met at Yalta in the Crimea during the first fortnight of February to discuss, amongst other matters, plans for bringing about the unconditional surrender of Germany, and the subsequent policy in regard to that nation and to liberated Europe.

As a result of daily meetings between the Chiefs of Staff of the three Allied Powers, closer co-ordination in the military effort was assured.

DEFEAT OF GERMANY PLANS

In a statement made by the Prime Minister of Great Britain, the President of the United States, and the Chairman of the Council of People's Commissars of the Union of Soviet Socialist Republics, published on 13th February, 1945, it was declared that :—

(1) Combined military plans would be made known only as they were executed.

(2) Germany, having been defeated, the forces of the three Powers would each occupy a separate zone. There would be a Central Control Commission consisting of the Supreme Commanders of those Powers, with headquarters in Berlin.

France would be invited to take a fourth zone and to participate as a fourth member of the Control Commission.

(3) German militarism and Nazism would be destroyed so that Germany would never again be able to disturb the peace of the world.

(4) All German armed forces would be disarmed and disbanded.

(5) The German General Staff would be broken up.

(6) German industry which could be used for military production would be eliminated or controlled.

(7) All war criminals would be brought to justice with swift punishment.

(8) Reparation in kind would be made for the destruction wrought by Germans.

PROBLEMS OF LIBERATED EUROPE

The statement also contained a Declaration on Liberated Europe. There would be joint action to give effect to the concerted policies of the three Powers to meet the political and economic problems of Liberated Europe " in accordance with democratic principles."

The Declaration re-affirmed the three-Powers' faith in the principles of the Atlantic Charter.

POLAND

Poland having been completely liberated by the Red Army, a new situation had arisen.

The Declaration called for a Polish Provisional Government on a broader basis than had hitherto been possible. The Provisional Government now functioning in Poland should be re-organized to include democratic leaders from Poland itself and from Poles abroad.

It was considered that the eastern frontier of Poland should follow the Curzon line, with digression from it in some region of five to eight kilometres in favour of Poland. The final delineation of the western frontier should await the peace conference.

YUGOSLAVIA

It was recommended that the agreement come to by Marshal Tito and Dr. Subasitch should be put into immediate effect and a new Government formed on the basis of that agreement.

There was also a general review of other Balkan questions.

UNITED NATIONS CONFERENCE

It was resolved that there should be established by the Allies at the earliest possible moment a general international organization to maintain peace and security. The foundations of this were laid at Dumbarton Oaks.[1]

A Conference of United Nations would be called to meet at San Francisco, U.S.A., on 25th April, 1945, to prepare the Charter of such an organization. France and China would be consulted in arranging this Conference.

[1] See International Situation in the JOURNAL for November, 1944, p. 401.

GREECE

THE following extract from a letter written by a Midshipman from Athens was published by permission in *Truth* for 5th January, 1945. It is reproduced by courtesy of that journal :—

"I have just read the summary of British Press views on the situation here. I have never read such misinformed rubbish showing a complete neglect of national characteristics and past and present history. They talk about this country as if it were England, with 'reconciliation of parties,' 'leader acceptable to both sides,' and so on. . . . The history of this place has always been that a strong man must rule, at least with the tacit assent of the majority (and the majority are nearly always tacit) and must suppress opposition by force if he is to maintain law and order. If you don't the result is chaos. When people go into opposition they don't just sit on the opposite side of the House and make fatuous speeches—they are either exiled or they go gunning for their political rivals. And don't tell me Greek isn't perfectly content to kill Greek; they enjoy it provided they don't take the consequences. We reached the Magna Carta in the thirteenth century. I am not prepared to predict when they will reach that stage of political development. What this country needs is an Ataturk, not a House of Commons. Why can't we realize that not all national mentalities are the same as our own? They appreciate a strong man, whether they love him or hate him. There is too much well-meaning idealism about and not enough facing facts."

CORRESPONDENCE

(Correspondence is invited on subjects which have been dealt with in the Journal, or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the Journal.—EDITOR.)

SCOUTS AND CADETS

To the Editor of the R.U.S.I. Journal.

SIR,—It is rather a pity that Major Tuke's article and the correspondence in the November Journal seems to invite your readers to judge between the Scouts and the Cadets as the best movement for boys to join. There need be no such antagonism. In fact there is none between the headquarters of the two organizations.

There are two reasons for this. First, there is plenty of room for both : the ceiling of the Cadets is only 200,000, whereas there are about 1,100,000 boys between 14 and 18 years of age. Secondly, there is a considerable difference in the ideal ages for Scouts and Cadets. Scouting is considered by many good judges to appeal most to boys under 15, and there is no doubt that Cadets are best between 15 and 18. Indeed, it may well be the right thing, when the lowest school-leaving age is raised to 15, as provided in the new Education Act, that the lowest age for enrolment into the Army Cadet Force should be raised to 15. There is then no real room for a clash between the Cadets and the main field of scouting ; furthermore, few will deny that scouting up to the age of 14 or 15 is a first-class preparation for service as a Cadet.

Major Tuke does not seem to approve of Certificate " A." He will be well advised to read the syllabus again. Then he will see that there is plenty of room for the sort of training he wants Cadets to have. If the training is stereotyped and the examination designed to produce mechanical answers instead of testing the intelligence or initiative of the boy, the fault lies not with the syllabus but with those who work it.

BRIDGEMAN.
Major-General

28th December, 1944

THE POST-WAR SERVICES

To the Editor of the R.U.S.I. Journal.

SIR,—The thoughtful article on the Post-War Army from the pen of Major A. J. C. Rose in your November issue very wisely stresses the importance of the manpower problem. This I venture to assert is going to be the key problem sooner or later for every scheme of defence formulated on paper or put into execution. Faced as we probably shall be by an expansionist policy in trade both at home, in the Dominions, India and our Colonies, by an extensive re-building programme, by some form of National Service at home, by repercussions of the Beveridge schemes for social security and full employment, and by a dwindling population, one cannot help feeling that an entirely new outlook and approach, free from old time prejudices and colour bar inhibitions, will have to be made to the whole question of Commonwealth defence from the standpoint of manpower conservation and non-reproductive expenditure. The size of the land forces is only one aspect of the problem. The future status of the Navy with its own Air Service and the strength and location of the Royal Air Force, presumably with formations of transport aircraft, have also to be considered. Then, too, there are political, strategical and economic ramifications which will be of immense importance. For instance on both manpower, financial and economic grounds will it be possible or even desirable in future times to keep 50,000 European fighting men in India ; or again, will it be to the national advantage to lock up some thousands of our invaluable younger men

in such " static " places as Malta, Gibraltar, Aden, Khartoum or on other garrison duties guarding air fields, islands and ports all over the world ? The only possible way out in the case of extra-European service seems to be to ask for a much wider co-operation from our Dominions and Colonies. What more can be done on the broad lines of defence by the Dominions and India without calling on this little country for men or money is a matter for expert consultation and their goodwill. But we still have our ubiquitous Colonies with their sixty million inhabitants to reckon with.

Most of these territories are deplorably under-developed socially, economically and industrially, and many have a large potential of fighting manpower. Would it not be possible to utilize the services of some of these elements on a voluntary recruited basis *in all three Services* for duty in the tropical and sub-tropical regions and thus allow this country to economize its manpower for our civil and military needs at or nearer home ? Assuming that an all round physical, mental and technical system of training is instituted, the advantages that would accrue to our Colonies, socially and economically over a period of years, cannot be denied by anyone with any knowledge or experience of their present condition. The young African or West Indian or even the young Newfoundlander is probably just as keen to see the world for a reasonable spell under good conditions as is his British counterpart, but unlike the latter he has in most cases as yet far fewer competing claims on his services in the economic and administrative spheres of civil life.

Perhaps some of your readers would consider this aspect of a problem the country will soon have to face up to.

G. J. SCOVELL.

London, S.W.1.

21st December, 1944.

MOUNTAIN WARFARE

To the Editor of the R.U.S.I. Journal.

SIR,—Mr. Amery's article on Mountain Warfare in the JOURNAL for November, 1944, will be appreciated by none more than the British-Indian divisions now fighting in Italy.

It has, of course, long been recognized in India that fighting in mountainous country is a form of warfare that needs specialized training and a high standard of efficiency. It is well to remember that it is a form of warfare wherein troops specially trained have a great advantage over others. We hear from Italy that the Germans fighting in the mountains still expect our men on the roads and paths, and that numbers of surprised prisoners are taken by lightly-equipped troops of our Indian divisions who move over the hill spurs and avoid the pitfall of the valley road.

There may be some who question the qualifications of Mr. Amery to expatiate on mountain warfare. Let us reassure them. Mr. Amery has been a life-long student of the art of war. He has served as a soldier in two wars. From early days, mountaineering has been his favourite hobby. He is President of the Alpine Club. He has climbed most of the mountains of Europe and many elsewhere. Two mountains are named after him. Incidentally, he is no mean linguist, and it was refreshing to hear of the Secretary of State for India addressing Indian troops in Italy in Hindustani last October.

H. M. BURROWS,
Brigadier.
(Late 12th Frontier Force Regiment, Indian Army.)

8th January, 1945.

GENERAL SERVICE NOTES

APPOINTMENTS

General Sir Henry Maitland Wilson, G.C.B., G.B.E., D.S.O., has been appointed head of the British Joint Staff Mission in Washington and personal representative of the Prime Minister on military matters with the President of the United States, in succession to the late Field-Marshal Sir John Dill, G.C.B., C.M.G., D.S.O.

General the Hon. Sir Harold Alexander, G.C.B., C.S.I., D.S.O., M.C., has been appointed Supreme Allied Commander, Mediterranean Theatre.

Lieut.-General H. E. de R. Wetherall, C.B., D.S.O., O.B.E., M.C., has been appointed Commander-in-Chief, Ceylon, *vice* Admiral Sir Geoffrey Layton, K.C.B., D.S.O.

EMPIRE CASUALTIES

The table below shows casualties to all ranks of British Commonwealth and Empire forces reported from 3rd September, 1939, to 30th November, 1944. The table excludes deaths from natural causes :—

	Killed, including died of wounds or injuries	Missing	Wounded	Prisoners of war, including Service internees	Total
United Kingdom [1]	199,497	39,383	235,207	161,020	635,107
Canada	28,040	4,807	39,010	7,128	78,985
Australia	18,015	6,913	34,336	25,597	84,861
New Zealand	8,919	928	17,115	7,153	34,115
South Africa	5,783	599	11,796	10,765	28,943
India	17,415	13,935	45,224	76,023 [2]	152,597
Colonies	4,493	14,015	3,686	6,752	28,946
Total, British Empire ...	282,162	80,580	386,374	294,438	1,043,554

[1] Including men from oversea serving in these forces, in particular from Newfoundland and Southern Rhodesia.

[2] Including 22,803 officers and other ranks missing but presumed to be prisoners of war.

NOTES.—(*a*) These figures exclude civilian casualties due to enemy action and casualties to merchant seamen. (*b*) The figures exclude repatriated or escaped prisoners of war and men reported missing who afterwards rejoined.

NAVY NOTES

GREAT BRITAIN

H.M. The King

The King visited the Portsmouth Command on 16th November. In a room 100 feet below the surface—the plotting room of Command Headquarters, from which the whole of the naval side of the invasion of Normandy was directed, he saw the " plot " as it was at 4.30 a.m. on the morning of D-day. From this room, the King was told, more than 5,000 signals were sent out on that day, and over 450 Wrens were on duty night and day. The King also visited H.M.S. " Vernon "—torpedo and anti-mining headquarters; made a tour of the Dockyard; took luncheon in H.M.S. " Victory "; and took the salute at a march past at the R.N. Barracks and at another march past at the R.M. Barracks.

The King has approved the appointment of Admiral of the Fleet Sir John C. Tovey, G.C.B., K.B.E., D.S.O., to be his First and Principal Naval Aide-de-Camp, in succession to Admiral Sir Percy L. H. Noble, G.B.E., K.C.B., C.V.O., who retires from the Active List on reaching the age limit.

In pursuance of His Majesty's pleasure, Captain A. V. Radcliffe, R.D., R.N.R., has been appointed a Royal Naval Reserve Aide-de-Camp to the King, to date 25th October, 1944, in succession to Captain (Acting Commodore, 2nd Class) D. A. Casey, C.B.E., D.S.O., D.S.C., R.D.

In pursuance of His Majesty's pleasure, Captain (S) A. G. Bath, O.B.E., has been appointed a Naval Aide-de-Camp to the King from 19th November, 1944, in succession to Captain (S) R. E. Worthington, C.B., D.S.C.

In pursuance of His Majesty's pleasure, Colonel Commandant (Temporary Brigadier) (Acting Major-General) A. R. Chater, C.B., D.S.O., O.B.E., has been appointed a Royal Marine Aide-de-Camp to the King, in place of Colonel Commandant (Temporary Brigadier) H. W. Simpson, D.S.O., promoted to Major-General, to date 20th November, 1944.

Flag Appointments

British Pacific Fleet.—It was announced on 10th December that the King had approved the following appointments:—

Admiral Sir Bruce A. Fraser, G.C.B., K.B.E., to be Commander-in-Chief, British Pacific Fleet.

Rear-Admiral C. S. Daniel, C.B.E., D.S.O., to be Vice-Admiral (Administration) British Pacific Fleet, with the acting rank of Vice-Admiral while holding this appointment.

Concurrently, it was officially announced from Headquarters of the South-East Asia Command at Kandy, Ceylon, that a powerful new British Fleet had been formed to operate in the Pacific theatre. There will be no change in responsibility for the Pacific theatre, which will remain that of the United States. There will be no appointment of a Supreme Allied Commander responsible to the Combined Chiefs of Staff. The British Fleet will operate under the command of Admiral Chester Nimitz in the Central Pacific area or under General MacArthur in the South-West Pacific area as the strategical situation demands. Admiral Fraser will be responsible to the Admiralty for the conduct and administration of his Fleet. (See also Australia.)

East Indies.—Vice-Admiral Sir Arthur J. Power, K.C.B., C.V.O., it was also announced on 10th December, is to be Commander-in-Chief, East Indies Station, with the acting rank of Admiral while holding this appointment.

It was announced in Colombo on 15th December that Rear-Admiral H. C. Rawlings, who had served in Ceylon as Rear-Admiral, Naval Air Stations, Indian Ocean, had been relieved by Rear-Admiral Clement Moody, C.B., who had been promoted Vice-Admiral and appointed Flag Officer (Air), East Indies Station.

LEVANT AND EASTERN MEDITERRANEAN.—On 3rd November, it was announced that Rear-Admiral W. G. Tennant, C.B., M.V.O., had been appointed to succeed Vice-Admiral Sir H. Bernard Rawlings, K.C.B., O.B.E., as Flag Officer, Levant and Eastern Mediterranean. Rear-Admiral Tennant has been granted the acting rank of Vice-Admiral while holding this appointment.

SEA COMMANDS.—On 30th December, it was announced that the following Flag Officers had been appointed to sea commands :—

Vice-Admiral Sir H. Bernard Rawlings, K.C.B., O.B.E.

Rear-Admiral Sir Philip L. Vian, K.C.B., K.B.E., D.S.O.

Rear-Admiral E. J. P. Brind, C.B., C.B.E.

EXPEDITIONARY FORCE.—It was announced on 19th January that Vice-Admiral (Acting Admiral) Sir Harold M. Burrough, K.C.B., K.B.E., D.S.O., had been appointed Allied Naval Commander, Expeditionary Force, in succession to the late Admiral Sir Bertram H. Ramsay.

The following other Admiralty appointments were announced at the same time :—

Rear-Admiral V. A. C. Crutchley, V.C., C.B., D.S.C., to be Flag Officer, Gibraltar and Mediterranean Approaches.

Rear-Admiral J. H. Edelsten, C.B., C.B.E., has been given a seagoing appointment.

The following appointments were announced by the Admiralty on 16th December :—

Rear-Admiral R. H. Portal, D.S.C., to be Flag Officer, Naval Air Stations (Australia).

Rear-Admiral J. G. L. Dundas, C.B.E., to be an Assistant Chief of Naval Staff, in succession to Rear-Admiral J. H. Edelsten, C.B., C.B.E.

Rear-Admiral J. W. Durnford to be Director of Naval Training, Admiralty, in succession to Rear-Admiral L. H. Ashmore.

A.C.N.S.—It was announced on 30th December that Captain L. D. Mackintosh, D.S.O., D.S.C., had been appointed to be an Assistant Chief of Naval Staff, in succession to Rear-Admiral R. H. Portal, D.S.C. Captain Mackintosh has been granted the acting rank of Rear-Admiral while holding this appointment.

NAVAL INFORMATION.—It was announced on 2nd December that Captain R. K. Dickson, D.S.O., R.N., had succeeded Admiral Sir William James, G.C.B., M.P., as Chief of Naval Information, and would hold this appointment in the acting rank of Rear-Admiral. Admiral Sir William James has accepted the Admiralty's invitation to carry out a special duty for which he is particularly fitted by his qualifications and experience, and has entered upon his new duty.

GOVERNOR, SOUTHERN RHODESIA.—On 20th November, it was announced that the King had approved the appointment of Vice-Admiral Sir Campbell Tait, K.C.B., M.V.O., to be Governor of Southern Rhodesia, in succession to the Hon. Sir Evelyn Baring, K.C.M.G. Vice-Admiral Tait had been Commander-in-Chief, African Station, since 1942.

GOVERNOR, NEWFOUNDLAND.—The Dominions Office announced on 1st December that the King had approved the extension for a further year from January, 1945, of the term of office of Vice-Admiral Sir Humphrey Walwyn as Governor and Commander-in-Chief of Newfoundland.

C.-IN-C., CEYLON.—It was announced from Kandy on 1st January that Admiral Sir Geoffrey Layton was about to relinquish the post of Commander-in-Chief, Ceylon, which he had held since March, 1942. Next day, the appointment to succeed him was

announced of Lieutenant-General H. E. de R. Wetherall, as General Officer Commanding, Ceylon.

BLACK ROD.—In the *London Gazette* on 2nd January it was announced that the King had been pleased by Letters Patent under the Great Seal of the Order of the Garter, bearing date the 1st January, 1945, to grant unto Vice-Admiral Sir Geoffrey Blake, K.C.B., D.S.O., the Office of Gentleman Usher of the Black Rod, vacant by the death of Air Chief Marshal Sir William Gore Sutherland Mitchell, K.C.B., C.B.E., D.S.O., M.C., A.F.C.

DEPUTY SECRETARY OF THE ADMIRALTY.—Mr. Richmond Walton, C.B., has been appointed Deputy Secretary of the Admiralty, from 15th November, 1944, on the retirement of Sir Sidney Barnes, K.B.E., C.B., from that office.

GREENWICH HOSPITAL.—The Board of Admiralty has appointed Sir Sidney Barnes to be Director of Greenwich Hospital. According to the last published statement, this Establishment had in 1940 an estimated income of £210,688. It was also estimated that, of this, £94,356 would be spent on pensions to seamen and marines and their widows, and the education of their children. A sum of £86,100 was to be devoted to the Royal Hospital School.

The last Director was the late Admiral Sir H. J. Studholme Brownrigg.

PROMOTIONS

Rear-Admiral H. T. C. Walker, C.B., is promoted to Vice-Admiral (12th December, 1944).

Rear-Admiral Clement Moody is promoted to Vice-Admiral (13th December, 1944).

The following Captains have been promoted to Rear-Admiral (2nd January, 1945) :—

Captain G. B. Middleton, C.B.E., A.D.C.

Captain H. Hickling, C.B.E., D.S.C., A.D.C.

Captain (Commodore, 2nd Class) A. E. M. B. Cunninghame Graham, C.B.E., A.D.C.

Captain (Acting Rear-Admiral) R. M. Servaes, C.B.E., A.D.C.

Captain (Commodore, 1st Class) H. A. Packer.

Captain R. D. Oliver, C.B.E., D.S.C.

The following promotions have also been approved (2nd January, 1945) :—

Captain (E) C. H. Nicholson, C.B.E., to Rear-Admiral (E).

Engineer Captain S. O. Frew to Engineer Rear-Admiral.

Engineer Rear-Admiral Frew is the first officer to reach that rank from engine-room artificer. He entered the Navy as an artificer apprentice at the age of 15 on 28th June, 1905, and went to sea as engine-room artificer in 1909. He was promoted to Mate (E) in 1916 and Engineer Lieutenant in 1918. In 1919 he joined the submarine branch, and later was flotilla engineer officer in the Mediterranean and China, and engineer officer of the " Arethusa " and " Royal Oak." Early in the present war he was appointed for duty at the Admiralty, and in 1941 as Fleet Engineer Officer with the Admiral (Submarines).

The following promotions have been made, to date 31st December, 1944 :—

COMMANDER TO CAPTAIN.—T. J. N. Hilken, T. Harland, J. Jefferis, B. Jones, G. C. Dickins, T. L. Bratt, H. Lovegrove, W. K. Edden, P. W. Brock, R. W. Stirling-Hamilton, A. F. Campbell, H. G. Dickinson, G. C. Phillips, E. O. F. Price, V. D. Donaldson, C. B. Alers-Hankey, B. Bryant, J. G. T. Inglis.

LIEUTENANT-COMMANDER TO COMMANDER.—D. E. G. Wemyss, F. D. Miller, R. T. Gardiner, R. W. F. Northcott, J. N. N. Synnott, P. M. B. Chavasse, A. S. Webb, M. W. Tomkinson, G. M. Bennett, N. Lanyon, T. H. B. Shaw, J. M. Robb, Sir M. Culme-Seymour, Bt., D. J. B. Jewitt, R. J. L. Hammond, A. F. P. Lewis, N. J. Wagstaff, R. Whinney, R. G. W. Hare, C. R. L. Argles, R. P. S. Grant, S. E. Post, A. A. F. Talbot, W. A. Juniper, J. M. Hodges, J. V. Waterhouse, F. W. R. Larken, F. C. Goodenough, G. A. L. Woods, D. G. Goodwin, H. P. Sears, G. V. Parmiter, M. Le Fanu, R. C. Biggs, A. R. Hezlet.

COMMANDER (E) TO CAPTAIN (E).—C. E. Simms, P. D. Oliver, G. A. D. Cooper, A. D. McGlashan.

LIEUTENANT-COMMANDER (E) TO COMMANDER (E).—B. S. Blanchford, A. G. Oliver, R. F. D. Harris, F. A. Lowe, T. G. B. Pearce, R. F. H. S. Tolson, M. H. Sayers, W. V. Stitt, A. E. Wood, J. E. Golby, P. Charig, C. P. G. Walker.

SURGEON COMMANDER TO SURGEON CAPTAIN.—R. W. Higgins, D. H. Kernohan, J. Hamilton, J. C. Souter.

COMMANDER (S) TO CAPTAIN (S).—P. H. Morrissey, R. R. Wallace.

LIEUTENANT-COMMANDER (S) TO COMMANDER (S).—D. P. H. Pearson, E. G. S. Maclean, W. K. Cornish-Bowden, A. Hawkins, G. R. Lavers.

HONOURS AND AWARDS

New Year Honours

The following were among the New Year Honours conferred by the King :—

Knight of the Thistle

Admiral of the Fleet Sir Andrew Browne Cunningham, Bt., First Sea Lord and Chief of the Naval Staff.

Order of the Bath

K.C.B. (MILITARY).—Vice-Admirals Irvine Gordon Glennie ; Arthur Francis Eric Palliser ; Frederick Hew George Dalrymple-Hamilton ; and Rear-Admiral Cloudesley Varyl Robinson (Retired).

C.B. (MILITARY).—Rear-Admirals C. S. Holland ; C. E. Morgan ; V. A. C. Crutchley, V.C. ; O. Bevir ; D. B. Fisher ; A. W. La Touche Bisset ; J. S. M. Ritchie (Retired) ; R. B. Darke (Retired) ; and C. F. Harris (Retired). Engineer Rear-Admiral A. K. Dibley. Major-General H. W. Simpson, R.M. Captain (Special Branch) Baron Reith, R.N.V.R. (See also NEW ZEALAND.)

C.B. (CIVIL).—G. A. Bassett, Royal Corps of Naval Constructors.

Order of the British Empire

G.B.E.—Sir James Lithgow, Bt., a Lord Commissioner of the Admiralty and Controller of Merchant Shipbuilding and Repairs.

K.B.E. (MILITARY).—Vice-Admiral Arthur Ninian Dowding (Retired) ; Rear-Admiral (S) Rowland Christopher Jerram ; Commodore (Second Class) Arthur James Baxter, R.N.R. ; and Commodore (Second Class) Roy Gill, R.N.R. (Retired).

C.B.E. (MILITARY).—Engineer Rear-Admirals, W. S. Hill (Retired) and W. R. Parnall (Retired). Ven. Archdeacon J. K. Wilson, Chaplain of the Fleet. Commodore (Second Class) J. M. Dick, R.N.V.R. Captains R.N., W. G. Andrewes ; L. H. Bell (Retired) ; C. J. L. Bittleston (Retired) ; C. A. H. Brooking (Retired) ; R. S. Warne ; J. V. Wotton (Retired) ; T. A. Hussey (Retired) ; H. R. M. Laird (Retired) ; and R. L. Moore. Engineer Captain H. H. R. Brown, R.N. Surgeon Captain T. B. Dixon, R.N.V.R. (Retired). Captains (S) R.N., W. S. Skinner (Retired) ; F. R. J. Mack ; and G. F. Pine. Major-General H. T. Newman, R.M.

Order of St. Michael and St. George

K.C.M.G.—Admiral Sir Geoffrey Layton, Commander-in-Chief, Ceylon. (Colonial Office List.)

Knight Bachelor

Commander Aylmer N. G. Firebrace, R.N. (Retired), Chief of Fire Staff and Inspector-in-Chief of the Fire Services, Home Office. (Prime Minister's List.)

Order of the Bath

The following appointments as C.B. were approved by the King on the dates stated :—

For distinguished service in the planning of operations concerned with the invasion of Normandy :—

Captain (Commodore, 2nd Class) E. G. H. Bellars, R.N., and Commander (Commodore, 2nd Class) R. G. H. Linzee, R.N. (Retired) (28th November, 1944).

For distinguished service in command of the naval forces which took part in the assault on the island of Walcheren :—

Captain A. F. Pugsley, R.N. (22nd December, 1944).

Order of the British Empire

The following appointments as C.B.E. were approved by the King on the dates stated :—

Captain G. R. G. Allen, D.S.O., O.B.E., R.N. (Retired), for distinguished service in the planning of operations which led to the capture of the Island of Elba (7th November, 1944).

For distinguished service during the landing of Allied Forces in Normandy :—Captains R.N., A. G. V. Hubback and B. I. Robertshaw (14th November, 1944).

For distinguished services in operations which led to the successful landing of Allied Forces in Normandy :—Rear-Admirals J. W. Rivett-Carnac ; W. G. Tennant. Captains R.N., C. N. E. Currey ; H. Hickling ; L. B. Hill ; and J. F. Hutchings (28th November, 1944).

For distinguished services in the planning of operations concerned with the invasion of Normandy :—Captain (Commodore, 2nd Class) H. W. Best, R.N. (Retired). Captain G. N. Loriston-Clarke, R.N. Captain (S) G. H. Moore, R.N. Commanders, R.N., R. T. Paul and G. W. Rowell (28th November, 1944).

For leadership and skill in command of H.M.S. " Furious " :—Captain G. T. Philip, D.S.O., D.S.C., R.N. (19th December, 1944).

Distinguished Service Order

The following was among several awards announced on 31st October for outstanding courage, skill, and determination in pressing home a successful attack on the Japanese naval base at Sabang :—

Third Bar to D.S.O.—Captain R. G. Onslow, R.N.

The following were among several awards announced on 14th November for gallantry, skill, determination, and undaunted devotion to duty during the landing of Allied Forces on the coast of Normandy :—

Second Bar to D.S.O.—Captain (Commodore, 1st Class) G. N. Oliver, R.N. Captains, R.N., E. W. Bush and A. F. Pugsley.

UNITED STATES AWARD

Among awards to British naval officers of United States decorations announced in December was the following :—

Legion of Merit (Chief Commander).—Rear-Admiral V. A. C. Crutchley, V.C., C.B., D.S.C. As Commander, Task Force, Seventh Fleet, from 15th March, 1943,

to 13th June, 1944, an inspiring and capable leader, he welded Australian and American units into a powerful fighting force.

The award was presented to Rear-Admiral Crutchley by Admiral H. R. Stark, Commander of the United States Naval Forces in Europe.

Death of Admiral Sir Bertram Ramsay

It was announced with deep regret at Supreme Headquarters, Allied Expeditionary Force, on 2nd January, that Admiral Sir Bertram Ramsay, Allied Naval Commander-in-Chief, was killed that morning when the aircraft in which he was travelling to attend a conference in Belgium crashed soon after taking off from a Paris aerodrome.

Admiral Ramsay, under General Eisenhower, planned and executed the naval operations off Normandy which led to the liberation of France, and was responsible to the Supreme Commander for the building up of the Allied Forces on the Continent and their continued supply. In a statement issued by Mr. A. V. Alexander, First Lord of the Admiralty, on 2nd January, the death of Sir Bertram was referred to as "a very great loss to the Royal Navy and to the Allied cause. When commanding at Dover he bore the chief responsibility for the evacuation of Dunkirk; and later in the Mediterranean he was associated with the planning and command of every important combined operation from the landing in North Africa onwards. Finally, as Naval Commander-in-Chief under General Eisenhower, his planning and leadership of the great assault on the Continent last June crowned a war career which must indeed bring pride to his family as well as to the Service in which he spent his life."

Personnel

Accountant Branch Titles.—On 2nd November, it was announced that a change in the titles of the Accountant Branch had been made by the Admiralty with the approval of the King. The Branch will in future be known as the Supply and Secretariat Branch. The word "Paymaster" in the rank titles of officers will be abolished, and replaced by the suffix (S) after the rank: a Paymaster Rear-Admiral will be known as Rear-Admiral (S), a Paymaster Captain as Captain (S), and so on. The officers of the Branch generally will be referred to as "Supply Officers." The changes are applicable to all Accountant Officers, whether Active Service, Retired, or Reserve, except those who are still designated by the pre-1918 titles in the *Navy List*.

R.N.V.R. Transfers.—Speaking at the R.N.V.R. (Auxiliary Patrol) Club on 10th November, the First Sea Lord—Admiral of the Fleet Sir Andrew Cunningham—said that the Admiralty would like to give opportunities of transferring to permanent Commissions to as many R.N.V.R. officers as possible. Where the Admiralty saw that a reasonably firm post-war commitment had arisen, it intended to introduce transfer schemes without waiting till the end of the War. It had already offered a limited number of executive Commissions to Reserve officers of the Executive and Air Branches, because it was clear that the development of naval aviation would require many more officers experienced in flying duties than before the War. The proper exercise of sea power would demand a Navy with a very strong air component.

Admiralty Allowance.—An Order in Council of 23rd November sanctions the payment to Naval and Marine officers of the rank or relative rank of Lieutenant-Commander, R.N., and Captain, R.M., who are serving at the Admiralty, of a special allowance at the rate of £90 10s. a year, with effect from 1st July, 1944. This allowance was originally granted by Order in Council of 22nd January, 1920, at the rate of £75 a year, subject to variation in the cost of living, and by Order in Council of 9th November, 1934, was consolidated at the rate of £68 a year. Another Order in Council of 23rd November provides that officers receiving naval rates of pay from Navy Votes, serving on the headquarters establishments of other Departments of State in what the Admiralty regard as positions of equivalent responsibility, shall be eligible for allowances under the same conditions as if they were serving at the Admiralty.

Women's Royal Naval Service

New Year Honours.—Among a number of New Year Honours awarded to W.R.N.S. Officers were :—

D.B.E.—Elvira Sibyl Marie, Mrs. Laughton Mathews, C.B.E. Director, W.R.N.S.

O.B.E.—Miss J. T. Kidd, Chief Officer, W.R.N.S.

Recent Awards.—" For distinguished services in connection with the planning of operations which led to the invasion of Normandy " :—

M.B.E.—Chief Officer F. Potter, W.R.N.S.

First Officer L. E. Medley, W.R.N.S.

Second Officer F. P. Chase, W.R.N.S.

Second Officer B. M. Brownell-Drabble, W.R.N.S.

Second Officer N. D. May, W.R.N.S.

Third Officer M. F. Sopper, W.R.N.S.

" For bravery and presence of mind in helping to remove four U.S. Army vehicles from burning garages during an air raid " :—

M.B.E.—Second Officer A. M. Whittaker, W.R.N.S.

Commendation.—" For good service in clearance and rescue work after an explosion at the docks in Bombay " :—

L/Wren B. Wilson.

Senior Appointments.—The following appointments were made in November :—

Mrs. G. L. Bell.—Superintendent W.R.N.S., Western Approaches.

Mrs. V. C. S. Boyd.—Superintendent W.R.N.S., The Nore.

Miss N. J. Currie.—Superintendent W.R.N.S. Portsmouth.

Miss J. Frith.—Superintendent W.R.N.S., Rosyth.

W.R.N.S. for the Pacific Fleet.—W.R.N.S. Officers and ratings are to work with the Pacific Fleet. The first large draft of over two hundred was addressed in London in December by the High Commissioner for Australia.

Recruiting.—Throughout 1944 entry to the W.R.N.S. was restricted, with certain exceptions, to volunteers between the ages of 17½ and 19. On 1st January the age limit was raised, and in 1945 a limited number of volunteers between the ages of 17½ and 45 will be accepted.

Uniform Allowance.—The uniform allowance for W.R.N.S. officers initially appointed on or after 1st July, 1944, has been increased from £50 to £55.

Material

New Battleship.—It was announced on 1st December that the Princess Elizabeth had recently visited a Northern shipyard, where Her Royal Highness named and launched a new battleship—the greatest yet built in the British Isles. The ship's name, type and class are for the present kept secret. The Princess Elizabeth's own Standard (made for her by the Royal Navy) was flown for the first time.

ROYAL MARINES

Major-General H. R. Lambert, C.B.E., D.S.C., is placed on the Retired List, on vacating appointment (20th November, 1944).

Colonel Commandant (Temporary Brigadier) H. W. Simpson, D.S.O., A.D.C., is promoted to Major-General; and Colonel Second Commandant (Acting Major-General) A. R. Chater, C.B., D.S.O., O.B.E., to be Colonel Commandant (Temporary Brigadier), and to retain the rank of Acting Major-General (20th November, 1944).

Captain (Brevet Major) (Acting Colonel Commandant, Temporary Brigadier) C. R. Hardy, D.S.O., is promoted to Major, and to retain the rank of Acting Colonel Commandant, Temporary Brigadier, under the provisions of Order in Council of 15th January, 1878, paragraph 6, for meritorious services before the outbreak of hostilities, and for his outstanding leadership and example during the present War, and in particular for his command of No. 46 R.M. Commando in the operations in Normandy, 1944 (28th November, 1944).

DOMINIONS AND COLONIES

AUSTRALIA

COMMAND.—The Commonwealth Naval Board announced on 8th December the appointment of Captain Harold Bruce Farncomb, D.S.O., M.V.O., R.A.N., as Commodore, 1st Class, to command the Australian Squadron, in the temporary absence of Commodore John Collins, recently wounded in action in the Philippines. Commodore Farncomb was in the original term at the R.A.N. College in 1913 and was the first graduate from that College to reach the rank of Captain.

PROMOTIONS.—The following were announced by the Commonwealth Naval Board, to date 31st December, 1944 :—

Commander to Captain.—H. J. Buchanan.

Lieutenant-Commander to Commander.—J. Plunkett-Cole, O. H. Becher.

PACIFIC FLEET BASE.—Welcoming the announcement of the transfer of a large part of the Royal Navy to the Pacific, Mr. Forde, Acting Prime Minister, stated on 11th December that the Commonwealth Government had undertaken to provide by June next facilities, supplies and services for the new Fleet estimated to cost a minimum of £A21,000,000. In an interview at Melbourne on the same day, Admiral Sir Bruce Fraser indicated that the Fleet, based on Australia, would include enough battleships and aircraft carriers to do more than sway the balance of naval strength in those waters. The administrative headquarters of the Fleet would be in Melbourne and Sydney. Battleships would dock at Sydney and aircraft carriers at Brisbane.

SYDNEY PREPARATIONS.—On 14th December, Mr. Makin, Minister for the Navy, announced that 3,000 artisans had been allotted to help in the servicing, repair and maintenance of the British Pacific Fleet throughout the engineering establishments and dockyards at Sydney. The new graving dock, capable of taking the largest ship afloat, would be ready in ample time to service the Fleet. The necessary workshops would be completed in February.

H.M.S. "GOLDEN HIND."—The naval manning depot for the Royal Navy, distinct from that of the R.A.N., which has been established at Sydney for the British Pacific Fleet, has been named H.M.S. "Golden Hind." This is the first use of the name for a unit of the Royal Navy, as Sir Francis Drake's "Golden Hind"—originally the "Pelican," was a private ship, as was Flemyng's "Golden Hind"—the first ship to report the approach of the Spanish Armada.

CANADA

RETIREMENT.—It was announced on 12th January that Vice-Admiral Percy W. Nelles, C.B., Head of the Canadian Naval Mission Overseas, had retired with the rank of Admiral. He is the first Canadian-trained naval officer to attain that rank.

APPOINTMENT.—Captain F. L. Houghton, R.C.N., Deputy Head of the Mission, has been appointed to succeed Admiral Nelles, with headquarters in London. Captain Houghton, who was born at Looe, Cornwall, was appointed a Midshipman in the R.C.N. in August, 1915.

NEW ZEALAND

NEW YEAR HONOUR.—The following was among the New Year Honours conferred by the King :—

C.B. (*Military*).—Commodore Sir Atwell H. Lake, Bt., Chief of Naval Staff and First Naval Member, New Zealand Naval Board.

SOUTH AFRICA

NEW FRIGATES.—On 6th December, the First Lord of the Admiralty announced in the House of Commons that the Union Government of South Africa had recently agreed to take over and man three frigates of the " Loch " class—our most modern type of escort vessl. The first of these ships had been commissioned as H.M.S.A.S. " Good Hope." To assist South Africa in her desire to strengthen her naval forces the United Kingdom Government decided that these three ships should be transferred as a gift.

AIR TRAINING AT CAPETOWN.—On 19th November it was reported from Capetown that a large training programme for the Fleet Air Arm had been started at the Naval Air Station there. As each squadron completed the course it would proceed to the Far Eastern theatre. Capetown was chosen as the training base because of its geographical position and the facilities afforded for all-round training. Local part-time units are co-operating with the Fleet Air Arm in exercises over the bushy country of the Cape Peninsula to give the pilots experience in the recognition and support of troops.

INDIA

NORMANDY OPERATIONS.—In the House of Lords on 6th December, the Under-Secretary for India—the Earl of Listowel—in reply to a question by Lord Strabolgi, said that 1,183 Indian ratings of the Merchant Navy took part in the operations for the invasion of Normandy. He was glad to pay a tribute to their fine bearing during those operations. No members of the Royal Indian Navy were employed.

ARMY NOTES

H.M. The King

On 3rd December, 1944, the King, accompanied by the Queen, took the Salute at a parade of the Home Guard in Hyde Park which was held to mark the occasion of its standing down. (See Frontispiece.)

The King and Queen, accompanied by the Princess Elizabeth, visited two of the composite regiments of the Household Cavalry on 7th December.

On 10th December, the King took the Salute at a parade of units of the Home Guard from the Windsor Area which was held to mark the occasion of their "stand down."

On 20th December, the King inspected No. 4 (Buckingham Palace) Company, 1st County of London (Westminster) Battalion, Home Guard, on the occasion of their "stand down."

The Princess Royal (Colonel-in-Chief) took the Salute at a passing-out parade at an O.C.T.U. of the Royal Signals in the Northern Command on 28th November.

The Princess Royal (Controller-Commandant) was present at Auxiliary Territorial Service Conferences in the Northern Command on 14th November and 18th January, and in London on 6th December and 3rd January. She visited a unit of the A.T.S. in the War Office on 12th December, and units of the A.T.S. in the London District on 4th January.

The Princess Royal opened an Army Cadet headquarters in the West Riding of Yorkshire on 13th January.

The King has approved the following appointments:—

To be Aides-de-Camp to the King.—Colonel (temporary Major-General) F. G. Beaumont-Nesbitt, C.V.O., M.C. (13th October, 1944); Colonel (temporary Brigadier) C. J. Weld, M.C., Indian Army (23rd October, 1943); Colonel (temporary Major-General) A. C. Curtis, C.B., D.S.O., M.C., Indian Army (1st July, 1944); Colonel (temporary Brigadier) H. E. A. Morris, C.I.E., O.B.E., Indian Army (4th September, 1944).

To be Hon. Physicians to the King.—Colonel J. S. K. Boyd, O.B.E., M.D., late R.A.M.C. (11th November, 1944); Major-General T. O. Thompson, C.B.E., D.M., late R.A.M.C. (12th December, 1944); Colonel J. W. Vanreenen, O.B.E., M.B., Ch.B., F.R.C.S., Indian Medical Service (17th July, 1944); Major-General N. Cantlie, M.C., M.B., F.R.C.S., late R.A.M.C. (5th December, 1944).

To be Hon. Surgeons to the King.—Colonel J. P. Huban, O.B.E., M.B., B.Ch., B.A.O., Indian Medical Service (17th July, 1944); Major-General W. C. Hartgill, O.B.E., M.C., late R.A.M.C. (17th November, 1944).

To be Colonels Commandant—of the Corps of Royal Engineers, Lieut.-General Sir Edwin L. Morris, K.C.B., O.B.E., M.C. (23rd November, 1944); of the Parachute Regiment, Army Air Corps, Field-Marshal Sir Bernard Montgomery, K.C.B., D.S.O. (6th November, 1944); of the Royal Corps of Signals, Major-General R. F. B. Naylor, C.B., C.B.E., D.S.O., M.C. (31st December, 1944); of the Royal Army Service Corps, Major-General (temporary Lieut.-General) Sir Humfrey M. Gale, K.B.E., C.B., C.V.O., M.C. (19th October, 1944); of the Royal Army Ordnance Corps, Major-General L. H. Williams, C.B., M.C. (1st January, 1945).

To be Colonels of Regiments—of the 1st King George the Fifth's Own Gurkha Rifles, Indian Army, Colonel H. M. D. Shaw, D.S.O. (27th October, 1944); of the Scinde Horse, Indian Army, Major-General E. D. Giles, C.B., C.M.G., D.S.O., I.A. (10th November, 1944); of the 18th Royal Garhwal Rifles, Indian Army, Lieut.-General R. B. Deedes, C.B., O.B.E., M.C., I.A. (1st December, 1944); of the King's Own Royal Regiment, Major-General R. M. Luckock, C.B., C.M.G., D.S.O. (1st January, 1945).

Honours and Awards

Victoria Cross.—The King has approved the award of the Victoria Cross to—

(*a*) Captain (temporary Major) R. H. Cain, The Royal Northumberland Fusiliers (attached The South Staffordshire Regiment, 1st Airborne Division)—for superb gallantry, leadership and powers of endurance during the Battle of Arnhem, 19th–25th September, 1944.

(*b*) Lieutenant T. Watkins, The Welch Regiment—for superb gallantry and leadership in North-West Europe on 16th August, 1944.

(*c*) Corporal S. Bates, The Royal Norfolk Regiment (posthumous)—for superb gallantry and self-sacrifice in North-West Europe on 6th August, 1944.

(*d*) Naik Yeshwant Ghadge, 5th Mahratta Light Infantry, Indian Army (posthumous)—for outstanding courage, determination and devotion to duty in Italy on 10th July, 1944.

(*e*) Corporal Sefanaia Sukanaivalu, Fiji Military Forces (posthumous)—for superb courage and self-sacrifice in action against the Japanese in the Solomon Islands on 23rd June, 1944.

(*f*) Rifleman Tulbahadur Pun, 6th Gurkha Rifles, Indian Army—for outstanding gallantry in Burma on 23rd June, 1944.

(*g*) Lance-Sergeant J. D. Baskeyfield, The South Staffordshire Regiment (1st Airborne Division) (posthumous)—for superb gallantry beyond praise at Arnhem on 20th September, 1944.

(*h*) Major D. V. Currie, 29th Canadian Armoured Reconnaissance Regiment (South Alberta Regiment), Canadian Armoured Corps—for outstanding courage, leadership and devotion to duty in Normandy between 18th and 21st August, 1944.

(*i*) Lieutenant (temporary Captain) J. N. Randle, The Royal Norfolk Regiment (posthumous)—for unsurpassed bravery and self-sacrifice at Kohima, Assam, on 4th and 6th May, 1944.

(*j*) Private E. A. Smith, The Seaforth Highlanders of Canada—for superb gallantry and devotion to duty in Italy on the night of 21st October, 1944.

(*k*) Rifleman Sher Bahadur Thapa, 9th Gurkha Rifles, Indian Army (posthumous)—for great bravery and outstanding devotion to duty in Italy on the night of 18th September, 1944.

(*l*) Private (acting Sergeant) G. H. Eardley, The King's Shropshire Light Infantry—for outstanding initiative and magnificent bravery in North-West Europe on 16th October, 1944.

(*m*) Corporal J. W. Harper, The York and Lancaster Regiment (posthumous)—for magnificent courage and devotion to duty in North-West Europe on 29th September, 1944.

(*n*) Private R. H. Burton, The Duke of Wellington's Regiment—for magnificent gallantry in Italy on 8th October, 1944.

(*o*) Lieutenant J. H. Grayburn, Parachute Regiment, Army Air Corps (posthumous)—for supreme courage, leadership and devotion to duty at Arnhem between 17th and 20th September, 1944.

The following were included in a list of awards announced on 21st December, 1944, in recognition of gallant and distingished services in Italy :—

C.B.—Major-General (acting) N. A. Coxwell-Rogers, C.B.E., D.S.O.; Brigadier (temporary) R. W. Galloway, C.B.E., D.S.O., M.B.; Major-General H. K. Kippenberger, C.B.E., D.S.O., E.D., New Zealand Military Forces; Brigadier (temporary) M. S. Lush, C.B.E., M.C.; Major-General (acting) R. F. H. Halder, O.B.E., B.Sc.

The following awards were included in the New Year's Honours List of 1st January, 1945 :—

G.C.B.—Generals Sir Frederick Pile, Bt., K.C.B., D.S.O., M.C., and Sir Claude Auchinleck, G.C.I.E., C.B., C.S.I., D.S.O., O.B.E.

K.C.B.—Lieut.-General Sir Henry Pownall, K.B.E., C.B., D.S.O., M.C.; General H. Finnis, C.B., M.C.

C.B.—Colonels (temporary Major-Generals) A. V. Anderson, M.B.E., G. Brunskill, M.C., and A. M. Cameron, M.C.; Major-General J. S. Crawford, C.B.E., M.I.Mech.E.; Lieut.-Colonel (temporary Colonel) J. H. Bevan, M.C.; Colonel (temporary Major-General) D. R. Duguid, M.B.E., A.M.I.E.E., A.M.I. Mech. E.; Colonel (temporary Brigadier) C. E. de Wolff, C.B.E.; Colonel (temporary Major-General) D. R. D. Fisher, C.B.E., D.S.O.; Colonel (honorary Major-General) I. C. Grant, C.B.E., D.S.O.; Colonels (temporary Major-Generals) R. K. Hewer, C.B.E., M.C., J. G. F. Holland, D.F.C., H. R. Kerr, O.B.E., M.C., and R. E. Laycock, D.S.O.; Major-General H. Lumsden, D.S.O., M.C.; Colonel (temporary Major-General) W. G. Michelmore, D.S.O., M.C., T.D.; Colonels (temporary Brigadiers) A. P. Sayer, D.S.O., and W. R. Stewart, C.I.E., M.B., Ch.B., F.R.C.S., K.H.P., V.H.S.; Major-General D. T. Richardson, M.C., M.B., K.H.S.; Colonel (honorary Major-General) G. St.G. Robinson, D.S.O., M.C.; Colonel (temporary Major-General) G. F. Watson, D.S.O., O.B.E.; Lieut.-Colonel (temporary Colonel) A. C. Vicary, D.S.O., M.C.; Colonel (honorary Major-General) J. E. T. Younger; Major-Generals C. M. P. Durnford, C.I.E., and R. H. Wordsworth, C.B.E.; Colonels (temporary Major-Generals) E. Wood, C.I.E., M.C., and F. R. R. Bucher, O.B.E., M.C.

K.C.I.E.—Major-General (temporary Lieut.-General) H. B. D. Willcox, C.B., D.S.O., M.C.

K.B.E.—Major-Generals (temporary Lieut.-Generals) A. Carton de Wiart, V.C., C.B., C.M.G., D.S.O., and G. N. Macready, C.B., C.M.G., D.S.O., O.B.E., M.C.

Appointments

The following appointments have been announced :—

To command the 11th Army Group.—Lieut.-General Sir Oliver Leese, Bt., K.C.B., C.B.E., D.S.O.

To command the Eighth Army.—Lieut.-General Sir Richard McCreery, K.C.B., D.S.O., M.B.E.

Chaplain-General.—The Rev. Canon F. L. Hughes, C.B.E., M.C., M.A., to be Chaplain-General to the Forces ranking as Major-General (6th November, 1944).

To be G.O.C. British troops in Egypt.—Lieut.-General (temporary) C. W. Allfrey, C.B., D.S.O., M.C.

To be Chief of Staff, South-East Asia Command.—Lieut.-General (temporary) F. A. M. Browning, C.B., D.S.O.

Education.—Brigadier C. Lloyd has been appointed Director of Army Education under the Director-General, Mr. P. R. Morris.

To be a D.D.M.S., with acting rank of Major-General.—Colonel J. Walker, C.B.E. M.C., M.B., late R.A.M.C. (12th December, 1944).

Welfare.—Lieut.-General C. J. S. King, C.B., C.B.E., has been appointed Prime Minister's personal representative to deal with matters of Welfare in India and South-East Asia.

To be G.O.C.-in-C., Eastern Command, India.—Lieut.-General Sir Richard O'Connor, K.C.B., D.S.O., M.C.

To be Deputy-Commander of the First Allied Airborne Army.—Major-General R. N. Gale, D.S.O., O.B.E., M.C.

Promotions

The following promotions have been announced :—

Field-Marshals.—To be Field-Marshals :—General the Hon. Sir Harold R. L. Alexander, G.C.B., C.S.I., D.S.O., M.C. (4th June, 1944) ; General Sir Henry Maitland Wilson, G.C.B., G.B.E., D.S.O. (29th December, 1944).

Generals.—To be General :—Lieut.-General H.R.H. the Duke of Gloucester, K.G., K.T., K.P., G.C.B., G.C.M.G., G.C.V.O., A.D.C. (27th October, 1944).

Lieut.-Generals.—The following Major-Generals (acting Lieut.-Generals) to be temporary Lieut.-Generals :—Sir John Harding, K.C.B., C.B.E., D.S.O., M.C. (10th November, 1944) ; F. A. M. Browning, C.B., D.S.O. (9th December, 1944) ; B. O. Hutchison, C.B., C.B.E. (9th January, 1945).

To be temporary Lieut.-General and War Subs. Major-General :—Colonel (acting Lieut.-General) A. Carton De Wiart, V.C., C.B., C.M.G., D.S.O. (9th October, 1944).

The following Major-Generals to be acting Lieut.-Generals :—J. L. I. Hawkesworth, C.B., C.B.E., D.S.O. (6th November, 1944) ; E. H. Barker, C.B., C.B.E., D.S.O., M.C. (2nd December, 1944).

To be acting Lieut.-General :—War Subs. Colonel (temporary Major-General) Sir B. H. Robertson, Bt., K.C.V.O., C.B., C.B.E., D.S.O., M.C. (16th December, 1944).

To be local Lieut.-General :—Major-General A. H. Godwin-Austen, C.B., O.B.E., M.C. (16th January, 1945).

Major-Generals.—The following Colonels (temporary Major-Generals) to be Major-Generals :—R. Richardson, C.B., M.C., Indian Army (24th September, 1944, with seniority 2nd April, 1944) ; T. O. Thompson, C.B.E., D.M., late R.A.M.C. (11th November, 1944) ; D. J. McMullen, C.B., C.B.E., D.S.O., M.I.Mech.E. (16th November, 1944, with seniority 15th June, 1943) ; H. R. Kerr, O.B.E., M.C. (27th November, 1944, with seniority 28th February, 1944) ; K. N. Crawford, C.B., M.C. (2nd December, 1944, with seniority 6th June, 1943) ; C. E. N. Lomax, C.B., C.B.E., D.S.O., M.C. (7th December, 1944, with seniority 8th June, 1943),

The following Colonels (acting Major-Generals) to be Major-Generals :—N. Cantlie, M.C., M.B., F.R.C.S., late R.A.M.C. (27th November, 1944) ; E. Phillips, C.B.E., D.S.O., M.C., M.B., late R.A.M.C. (12th December, 1944).

The following Colonels (acting Major-Generals) to be temporary Major-Generals :—F. E. W. Simpson, C.B., D.S.O. (28th October, 1944) ; A. A. Richardson, D.S.O. (9th December, 1944) ; M. B. Burrows, C.B., D.S.O., M.C. (23rd December, 1944) ; H. M. Whitty, O.B.E. (2nd January, 1945) ; W. A. M. Stawell, C.B.E., M.C. (27th November, 1944) ; G. N. Russell, C.B.E. (18th January, 1945).

To be temporary Major-General :—Major (acting Major-General) R. E. Laycock, D.S.O. (22nd October, 1944).

The following War Subs. Lieut-Colonels (acting Major-Generals) to be temporary Major-Generals and War Subs. Colonels :—G. P. B. Roberts, D.S.O., M.C. (6th December, 1944) ; T. G. Rennie, D.S.O., M.B.E. (12th December, 1944) ; R. E. Urquhart, C.B., D.S.O. (10th January, 1945) ; Sir F. W. De Guingand, K.B.E., C.B., D.S.O. (1st December, 1944) ; M. W. A. P. Graham, C.B., C.B.E., M.C. (15th January, 1945).

The following Colonels (temporary Brigadiers) to be acting Major-Generals :—H. Redman, C.B.E. (4th August, 1944) ; G. A. Pilleau, M.C. (5th November, 1944) ; P. A. Ullman, O.B.E. (9th October, 1944) ; E. Phillips, C.B.E., D.S.O., M.C., M.B., late R.A.M.C. (10th November, 1944) ; A. C. T. Evanson, M.C. (15th January, 1945).

The following Lieut.-Colonels (temporary Brigadiers) to be acting Major-Generals :—L. G. Whistler, Royal Sussex Regiment (22nd June, 1944) ; E. M. Bastyan, C.B., C.B.E., Royal Irish Fusiliers (19th December, 1944) ; D. R. E. R. Bateman, D.S.O., O.B.E., 10th Baluch Regiment, I.A. (8th November, 1944).

Home Guard

On the occasion of its standing down, a special Army Order was issued to the Home Guard (and published in the Press on 4th December, 1944), giving the following message from the King :—

" For more than four years you have borne a heavy burden. Most of you have been engaged for long hours in work necessary to the prosecution of the war or to maintaining the healthful life of the nation ; and you have given a great portion of the time which should have been your own to learning the skilled work of a soldier. By this patient, ungrudging effort you have built and maintained a force able to play an essential part in the defence of our threatened soil and liberty.

" I have long wished to see you relieved of this burden ; but it would have been a betrayal of all we owe to our fathers and our sons if any step had been taken which might have imperilled our country's safety. Till very recently, a slackening of our defences might have encouraged the enemy to launch a desperate blow which could grievously have damaged us and weakened the power of our own assault. Now, at last, the splendid resolution and endurance of the Allied armies have thrust back that danger from our coasts. At last I can say that you have fulfilled your charge.

" The Home Guard has reached the end of its long tour of duty under arms. But I know that your devotion to our land, your comradeship, your power to work your hardest at the end of the longest day will discover new outlets for patriotic service in time of peace.

" History will say that your share in the greatest of all our struggles for freedom was a vitally important one. You have given your service without thought of reward. You have earned in full measure your country's gratitude.

" George R.I., Colonel-in-Chief."

General

Field-Marshal Dill.—Field-Marshal Sir John Dill died in Washington, U.S.A., on 4th November, 1944. The citation issued with the American Distinguished Service Medal awarded to the Field-Marshal posthumously by President Roosevelt is quoted below :—

" While serving as Chief of the British Joint Staff Mission to the United States and senior representative on the Combined Chiefs of Staff from December, 1941, to the hour of his death, Field-Marshal Sir John Greer Dill, G.C.B., C.M.G., D.S.O., rendered distinguished service to the common cause of the Allies.

" In the conferences in Washington and at Casablanca, Quebec, Cairo, and Teheran, his services were of the first importance in securing the necessary co-operation between the British and American military forces as represented by their Chiefs of Staff.

" The good will and concert of action which characterized the combined achievements of the Allied forces must be attributed in an important measure to his integrity of purpose, his freedom from prejudice, and his selfless devotion to the common cause, together with the warm humanity which characterized all his actions.

" Possessed of these rare qualities, Sir John Dill made an enduring contribution towards a victorious conclusion of the war and also to that harmony of purpose which is essential to our security in the years to come."

Soviet General at Sandhurst.—Major-General A. V. Vasiliev, head of the Russian Military Mission to England, took the Salute at the passing-out parade at the Royal Military College, Sandhurst, on 30th December, 1944. It was the first time in the history of the College that a Russian officer had been invited to attend the ceremony.

The Leicestershire Regiment.—On 23rd September, 1944, a combined civic and regimental ceremony was held at Leicester whereat the Lord Mayor handed over to the Colonel of the Leicestershire Regiment (General Sir Clive Liddell, K.C.B., C.M.G., C.B.E., D.S.O.) an ornamental scroll recording a Resolution passed by the Lord Mayor, the Aldermen and Councillors of the City of Leicester conferring upon the Regiment

the privilege of marching through the streets of the City of Leicester on all ceremonial occasions with bayonets fixed, Colours flying and bands playing. The scroll is encased in a desk of finely carved oak, with an ebony inlaid top. It has been placed in the Regimental Chapel of St. George in Leicester Cathedral.

GUARDS' PARADE SERVICES.—The Guards' Chapel was destroyed by enemy action in June. The Major-General Commanding the Brigade of Guards accepted the invitation of Prebendary Kirk and the parochial church council to use St. Peter's, Eaton Square, for their parade services; and the first parade service was held at St. Peter's on Sunday, 19th November, 1944.

HOUSEHOLD CAVALRY.—An article on the Household Cavalry on the Western Front appeared in *The Times* of 11th November, 1944.

THE DORSETSHIRE REGIMENT.—The splendid conduct of a battalion of the Dorsets near Arnhem is described in an article in *The Times* of 14th November, 1944.

CIVILIAN AIR RAID CASUALTIES.—The following figures show civilian casualties due to air raids and "enemy action" on the United Kingdom during 1944:—

	Killed	*Injured and detained in hospital*	*Total*
January	107	270	377
February	961	1,712	2,673
March	279	633	912
April	146	226	372
May	68	75	143
June	1,935	5,906	7,841
July	2,441	7,107	9,548
August	1,103	2,921	4,024
September	170	360	530
October	172	416	588
November	716	1,511	2,227
December	637	847	1,484
Total	8,735	21,984	30,719

CANADA

VICTORIA CROSS.—The Victoria Cross has been awarded to Major D. V. Currie, Canadian Armoured Corps, and Private E. A. Smith, The Seaforth Highlanders of Canada (see page 95).

APPOINTMENTS.—Major-General P. J. Montague, C.B., C.M.G., D.S.O., M.C., has been appointed Chief of Staff at Canadian headquarters in London, with acting rank of Lieut.-General. Brigadier E. G. Weeks has been appointed to succeed General Montague as officer in charge of administration in London, with acting rank of Major-General.

HONOURS.—The following awards were included in the New Year's Honours list of 1st January, 1945:—

C.B.—Major-General (acting Lieut.-General) J. C. Murchie, C.B.E., Canadian Army; Major-Generals H. F. H. Hertzberg, C.M.G., D.S.O., M.C., and E. J. Renaud, C.B.E., Canadian Army.

SOUTH AFRICA

HONOUR.—The following award was included in the New Year's Honours list of 1st January, 1945:—

C.B.—Colonel (acting Brigadier-General) H. S. Wakefield, O.B.E., South African Staff Corps.

GUARDS CHAPEL.—The following is quoted from *The Times* of 9th January, 1945 :—

" Correspondence regarding the gift of over £5,000 from the 6th South African Armoured Division toward the cost of the restoration of the Guards Chapel is now available.

" The offer was contained in a letter from Major-General W. H. E. Poole, G.O.C. the division, to Field-Marshal Alexander, Supreme Allied Commander, Mediterranean Forces, and the following is an extract :—

" ' When the 6th South African Armoured Division was fighting in the area of Chiusi we were visited by Field-Marshal J. C. Smuts on his return to South Africa from London. The Field-Marshal brought us the tragic news of the destruction of the Guards Chapel in London by a flying bomb during Divine service. This was the first intimation any of us had had of what had happened. The South African and Southern Rhodesian officers and men of the division immediately decided that they would like the division to be associated with their Guards comrades in the restoration of this sacred and historic monument, and voluntarily subscribed the sum of £E5,000 (approximately £5,125 sterling) for this purpose. I now enclose a cheque for this amount, and must ask you to be so good as to accept it as a token of the tremendous admiration we South Africans have for the unsurpassed courage and fighting qualities of His Majesty's Brigade of Guards, and in honoured memory of their fallen.'

" Field-Marshal Alexander, acknowledging the gift, wrote :—

" ' As an old Guardsman I am deeply touched by the sentiments you express and overwhelmed by the generosity of your gift. It is truly magnificent. I am forwarding your letter and cheque immediately to Lieutenant-General Sir H. C. Loyd, Commanding London District and Brigade of Guards, from whom you will hear shortly. In the meantime, as the senior Guardsman in this theatre of operations will you please accept my sincerest and deepest thanks for your kindness and generosity in this splendid gift. It will constitute a reminder to all Guardsmen in days to come of the happy association between your division and the Brigade on the battlefields of Italy.'

" Lieutenant-General H. C. Loyd, Major-General, Commanding Brigade of Guards, subsequently sent the following letter to Major-General Poole :—

" ' I know very well how real has been the admiration and how genuine the affection that has sprung up among Guardsmen serving in Italy for the officers and men of your division. It is now clear that this great mutual feeling of friendship and esteem goes very deep, but even that does not account for this magnificent generosity, which can only be described as bewildering. I can assure you that Guardsmen will never forget it.

" ' I fear that, owing to lack of facilities in the way of material and labour, some considerable time may elapse before the chapel can be rebuilt, and until then the details of the redecoration can clearly not be decided. But when that time comes I am sure the Chapel Committee will wish your representatives to be associated with their deliberations so that this great gesture can be visibly and suitably commemorated in the new chapel.' "

UNITED STATES

APPOINTMENTS.—Lieut.-General Mark Clark, United States Army, has been appointed Commander-in-Chief of the Allied 15th Group of Armies ; and Lieut.-General Lucian Truscott is now Commanding General of the Fifth Army.

NEW RANKS.—President Roosevelt has nominated Generals Marshall, MacArthur, Eisenhower and Arnold to the newly created rank of General of the Army.

BRITISH CIVIC HONOUR.—On 16th December, 1944, the City of Lichfield conferred upon Colonel James A. Kilian and the officers and enlisted members of his depot of the Army of the United States of America in perpetuity the right and honour of marching through the streets of the city on all ceremonial occasions with drums beating, bands playing, Colours flying and bayonets fixed. Colonel Kilian was presented with a casket and a titled and inscrolled deed, the casket being mounted with an eagle carved in oak from the roof of the bombed House of Commons.

AIR NOTES

GREAT BRITAIN

H.M. The King

Group Captain (Acting Air Commodore) L. F. Sinclair, G.C., C.B.E., D.S.O., is appointed Air Aide-de-Camp to the King, and relinquishes his appointment as Additional Air A.D.C. (1st October, 1944).

The under-mentioned are appointed Air Aides-de-Camp to the King :—

Group Captains A. S. Ellerton, C.B.E., and J. G. Hawtrey. Group Captains (Acting Air Commodores) D. F. W. Atcherley, D.S.O., D.F.C.; S. H. Hardy, C.B.E.; and W. W. Straight, C.B.E., M.C., D.F.C., A.A.F.

H.R.H. The Duke of Gloucester

Air Marshal H.R.H. the Duke of Gloucester, K.G., K.T., K.P., G.C.B., G.C.M.G., G.C.V.O., A.D.C., has been promoted to Air Chief Marshal to date 27th October, 1944.

Appointments

The following were announced on the dates stated. In order to save space, decorations held by the various officers are omitted.

26th October, 1944 :—

Air Vice-Marshal J. H. D'Albiac to Permanent Commission Selection Board, Directorate-General of Personal Services, Air Ministry.

Air Vice-Marshal A. P. Davidson to special duties with Control Commission, Military Section, Air Force Planning Staff.

Air Commodore P. H. Mackworth to be Commandant, Empire Central Navigation School.

Air Commodore A. H. Wann to Directorate-General of Personal Services, Air Ministry (Morale and Rehabilitation).

Acting Air Commodore G. D. Harvey to Permanent Commission Selection Board, Air Ministry.

1st November, 1944 :—

Following on recent adjustments in the direction of the Allied Air Forces, Air Marshal Sir Arthur Coningham assumes responsibility for the administrative control of all R.A.F. units in North-West Europe and becomes Air Officer Commanding-in-Chief, 2nd Tactical Air Force. (On 8th January, 1945, it was announced that Sir Arthur Coningham had taken over temporary operational control of the American 9th Tactical Air Command and 29th Tactical Air Command, two of the three components of the American 9th Air Force, which is co-operating with the American Armies on the Western Front. This step followed the placing of the American 1st and 9th Armies under the command of Field Marshal Sir Bernard Montgomery.)

3rd November, 1944 :—

Air Commodore J. R. Scarlett-Streatfeild to be A.O.C. of a Group in Fighter Command, and to be Acting Air Vice-Marshal.

Air Commodore W. A. D. Brook to H.Q., Air Command, South-East Asia, for Air Staff (Plans) Duties.

16th November :—

Air Vice-Marshal J. J. Breen to be Head of Planning Executive, Air Ministry, and to be Acting Air Marshal.

Air Vice-Marshal H. W. L. Saunders to be Director-General of Postings, Air Ministry.

Air Vice-Marshal J. B. Cole-Hamilton to be A.O.C. of a Group in Fighter Command.

Acting Air Vice-Marshal T. A. Langford-Sainsbury to be A.O.C., Egypt.

Acting Air Vice-Marshal G. S. Hodson to be A.O.C. of a Group in Bomber Command.

Air Commodore K. B. Lloyd to be A.O.C., Malta, and to be Acting Air Vice-Marshal.

3rd December, 1944 :—

Air Vice-Marshal L. N. Hollinghurst to be A.O.C., Base Air Forces, South-East Asia, and to be Acting Air Marshal.

Air Commodore A. C. H. Sharp to be Air Officer-in-Charge of Administration, Base Air Forces, A.C., S.E.A., and to be Acting Air Vice-Marshal.

10th December, 1944 :—

Air Vice-Marshal E. C. Hudleston to be A.O.C. of the 2nd Tactical Air Force Group supporting the 1st Canadian Army, Western Front.

22nd December, 1944 :—

Air Vice-Marshal Sir Brian Baker to be A.O.C., East Africa.

Air Vice-Marshal F. H. M. Maynard to be A.O.C. of a Group in Coastal Command.

Air Vice-Marshal H. S. Kerby to be Air Officer-in-Charge of Administration, Coastal Command.

Acting Air Vice-Marshal R. A. George to be A.O.C., Iraq and Persia.

5th January, 1945 :—

Air Marshal H. E. P. Wigglesworth to be Deputy Chief of Staff (Air) at Supreme Headquarters, Allied Expeditionary Force.

20th January, 1945 :—

Air Vice-Marshal Douglas Colyer to be Head of the R.A.F. Delegation, Washington, and to be Air Marshal.

Acting Air Marshal W. A. Coryton to be Air Marshal Commanding, Bengal and Burma.

Air Vice-Marshal W. F. Dickson to be Assistant Chief of Air Staff (Policy), Air Ministry.

Air Vice-Marshal J. W. Baker to be A.O.C. of a Group in Fighter Command.

Acting Air Vice-Marshal C. A. Stevens to be Air Officer-in-Charge of Administration, Bengal and Burma.

Acting Air Vice-Marshal G. E. Gibbs to be Senior Air Staff Officer, Bengal and Burma.

Acting Air Vice-Marshal R. M. Foster to be A.O.C., Desert Force, M.A.A.F.

Aircraft Production.—It was announced on 18th January that Air Chief Marshal Sir Wilfrid Freeman, at his own request, would shortly retire from the post of Chief Executive of the Ministry of Aircraft Production, which he had held since 1942. Sir Wilfrid will continue to be a Member of the Air Supply Council. He will be succeeded as Chief Executive from 25th March by Mr. E. N. Plowden, who is now Director-General of Engine and Materials Production.

Educational Services.—Air Commodore A. H. Robson has been appointed Director of Educational Services, Air Ministry, in succession to Air Commodore W. M. Page, who recently retired. Air Commodore Robson had been Deputy Director since 1942.

PROMOTIONS

Air Commodore (Acting Air Vice-Marshal) to Air Vice-Marshal (temporary), 1st June, 1944 —

T. W. Elmhirst, C.B.E., A.F.C.
H. K. Thorold, C.B.E., D.S.C., D.F.C., A.F.C.
L. O. Brown, C.B.E., D.S.C., A.F.C.
T. A. Langford-Sainsbury, O.B.E., D.F.C., A.F.C.
J. W. Jones, C.B.
S. P. Simpson, C.B., C.B.E., M.C.
C. R. Steele, C.B., D.F.C.
T. M. Williams, C.B., O.B.E., M.C., D.F.C.

Air Commodore (temporary Air Vice-Marshal) to Air Vice-Marshal, 1st June, 1944 :—

R. Graham, C.B., C.B.E., D.S.O., D.S.C., D.F.C.
D. Harries, C.B., A.F.C.

Air Commodore (temporary Air Vice-Marshal) to Air Vice-Marshal, 1st December, 1944 :—

R. D. Oxland, C.B., C.B.E.
Sir Leonard H. Slatter, K.B.E., C.B., D.S.C., D.F.C.
A. Lees, C.B., C.B.E., D.S.O., A.F.C. (acting Air Marshal).
Sir Brian E. Baker, K.B.E., C.B., D.S.O., M.C., A.F.C.
J. B. Cole-Hamilton, C.B., C.B.E.

Group Captain (temporary Air Vice-Marshal) to Air Commodore, 1st June, 1944 :—

A. P. M. Sanders, C.B., C.B.E.
E. A. B. Rice, C.B., C.B.E., M.C.
R. Harrison, C.B., C.B.E., D.F.C., A.F.C.
A. C. Collier, C.B., C.B.E.
W. F. Dickson, C.B., D.S.O., O.B.E., A.F.C.

Group Captain to Air Commodore (temporary), 1st October, 1944 :—

D. Iron, C.B.E.
R. G. Gardner, C.B.E., D.S.C.
J. J. Williamson, A.F.C.
A. P. Ritchie, C.B.E., A.F.C. (Acting Air Vice-Marshal).
G. O. Venn.
J. A. Boret, C.B.E., M.C., A.F.C.
C. W. Busk, M.C., A.F.C.
H. H. Down, A.F.C.
W. J. Seward, C.B.E.
F. Beaumont.
E. F. Waring, C.B.E., D.F.C., A.F.C.
J. W. F. Merer.
E. D. H. Davies.
J. L. Kirby, C.B.E.
H. F. V. Battle, O.B.E., D.F.C.
A. R. Wardle, A.F.C.
F. L. Pearce, D.S.O., D.F.C.
F. W. Long.
J. D. I. Hardman, O.B.E., D.F.C.
G. P. H. Carter.
A. Hesketh, C.B.E., D.F.C.
C. E. N. Guest, O.B.E.
W. A. D. Brook, C.B.E.

N. H. D'Aeth, C.B.E.
C. B. R. Pelly, C.B.E., M.C.
R. S. Blucke, D.S.O., A.F.C.
D. A. Boyle, A.F.C.
G. R. Beamish, C.B., C.B.E.
A. C. H. Sharp.

Technical Branch. Group Captain to Air Commodore (temporary), 1st October, 1944:—

E. J. D. Townesend.
H. W. Heslop, O.B.E.
D. W. Clappen.
L. Dalton-Morris, C.B.E.

Equipment Branch. Group Captain to Air Commodore (temporary), 1st October, 1944:—

T. G. Skeats, C.B.E.
K. D. G. Collier.

Accountant Branch. Group Captain to Air Commodore (temporary), 1st October, 1944:—

W. G. W. Prall.
R. Whyte.

Auxiliary Air Force. Group Captain to Air Commodore (temporary), 1st October, 1944:—

G. H. Ambler, C.B.E., A.F.C.

Group Captain (temporary Air Vice-Marshal) to Air Commodore, 1st December, 1944:—

W. Elliot, C.B., C.B.E., D.F.C.
J. W. Baker, C.B., M.C., D.F.C.
H. S. P. Walmsley, C.B., C.B.E., M.C., D.F.C.
A. B. Ellwood, C.B., D.S.C.
L. O. Brown, C.B.E., D.S.C., A.F.C.
T. A. Langford-Sainsbury, O.B.E., D.F.C., A.F.C.
J. W. Jones, C.B.
S. P. Simpson, C.B., C.B.E., M.C.
C. R. Steele, C.B., D.F.C.
T. M. Williams, C.B., O.B.E., M.C., D.F.C.

Group Captain (temporary or war substantive Air Commodore) to Air Commodore, 1st December, 1944:—

E. B. C. Betts, C.B.E., D.S.C., D.F.C. (Acting Air Vice-Marshal).
C. H. K. Edmonds, C.B.E., D.S.O. (Acting Air Vice-Marshal).
A. L. Fiddament, C.B.E., D.F.C. (Acting Air Vice-Marshal).
C. E. V. Porter, C.B.E. (Acting Air Vice-Marshal).
A. L. Paxton, D.F.C. (Acting Air Vice-Marshal).
P. E. Maitland, M.V.O., A.F.C.

Technical Branch. Air Commodore (temporary Air Vice-Marshal) to Air Vice-Marshal:—

H. H. McL. Fraser, 1st December, 1944.

Technical Branch. Group Captain (temporary or war substantive Air Commodore) to Air Commodore, 1st December, 1944:—

C. B. Cooke, C.B.E.
E. J. Cuckney, C.B.E., D.S.C. (Acting Air Vice-Marshal).
E. D. Davis, O.B.E. (Acting Air Vice-Marshal).

Medical Branch :—

Air Commodore (temporary Air Vice-Marshal) A. Grant, C.B.E., to Air Vice-Marshal, 1st December, 1944.

Group Captain (temporary Air Commodore, Acting Air Vice-Marshal) T. J. Kelly, M.C., to Air Commodore, 1st December, 1944.

Group Captain (temporary Air Commodore) K. Biggs, M.C., to Air Commodore, 1st December, 1944.

Group Captain (temporary Air Commodore), Acting Air Vice-Marshal) A. F. Rook, O.B.E., to Air Vice Marshal (temporary, 1st January, 1945.

Grant of Acting Rank :—

Air Vice-Marshals as Air Marshals :—

R. V. Goddard, C.B., C.B.E., 1st October, 1944.
J. M. Robb, C.B., D.S.O., D.F.C., A.F.C., 15th October, 1944.
L. N. Hollinghurst, C.B., C.B.E., D.F.C., 6th November, 1944.
H. E. P. Wigglesworth, C.B., C.B.E., D.S.C., 15th October, 1944.
J. J. Breen, C.B., O.B.E., 1st December, 1944.

The undermentioned as Air Vice-Marshals :—

Air Commodore S. F. Vincent, A.F.C., 18th October, 1944.
Air Commodore K. B. Lloyd, C.B.E., A.F.C., 19th October, 1944.
Group Captain (Acting Air Commodore) J. R. Scarlett-Streatfeild, C.B.E., 18th October, 1944.
Group Captain (temporary Air Commodore) A. C. H. Sharp, 19th October, 1944.
Group Captain (Acting Air Commodore) E. C. Hudleston, C.B.E., 10th November, 1944.

Technical Branch. Air Commodore as Air Vice-Marshal :—

C. B. Cooke, C.B.E., 6th December, 1944.

Retirements

Air Marshal Sir William L. Welsh, K.C.B., D.S.C., A.F.C., at his own request (1st December, 1944).

Air Vice-Marshal Sir John E. A. Baldwin, K.B.E., C.B., D.S.O., reversion to Retired List, retaining the rank of Air Marshal (15th December, 1944).

Air Commodore G. C. Bailey, C.B., D.S.O. (25th September, 1944).

Air Commodore J. C. Quinnell, C.B., D.F.C. (11th December, 1944).

Group Captain F. C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., reversion to Retired List, resuming with effect from 31st December, 1944, the rank of Air Vice-Marshal, seniority 1st July, 1928.

Honours and Awards

Distinguished Service Order.—On 11th January it was announced that the King had approved the award of a Third Bar to the D.S.O. to Wing Commander J. B. Tait, D.S.O., D.F.C., No. 617 Squadron. This officer has displayed conspicuous bravery and devotion to duty in the face of the enemy over a long period of operational flying. On three occasions he led attacks on the German battleship " Tirpitz," including when she was sunk at Tromso. The first bomb, dropped by Wing Commander Tait, hit the " Tirpitz." He has completed 98 sorties.

New Year Honours

The following were among the New Year Honours conferred by the King :—

Order of The Bath

K.C.B. (*Military*).—Air Marshals Sir Keith Rodney Park and Sir Harold Edward Whittingham ; Air Vice-Marshal George Laing.

C.B. (*Military*).—Air Vice-Marshals L. O. Brown; T. W. Elmhirst; A. Grant; T. A. Langford-Sainsbury; E. B. Addison; E. D. Davis; B. E. Embry; F. L. Hopps; E. C. Hudleston; C. E. W. Lockyer; C. M. McEwen, R.C.A.F.; F. H. Mcnamara, V.C., R.A.A.F.; S. F. Vincent; J. Whitford. Air Commodores C. E. H. Allen; G. H. Boyce; P. R. T. J. M. I. C. Chamberlayne; L. H. Cockey; P. E. Maitland; S. O. Bufton; P. L. Lincoln, A.A.F.; and I. T. Lloyd. (See also AUSTRALIA and CANADA.)

Order of The British Empire

G.B.E. (*Military*).—Air Chief Marshal Sir Christopher Lloyd Courtney.

K.B.E. (*Military*).—Air Marshal James Milne Robb. Air Vice-Marshals the Hon. Ralph Alexander and Lawrence Arthur Pattinson (Retired).

C.B.E. (*Military*).—Air Vice-Marshals G. D. Daly; G. E. Gibbs; C. B. S. Spackman; S. E. Toomer. Air Commodores D. A. Boyle; H. F. Fuller; C. E. N. Guest; H. T. Lydford; F. J. W. Mellersh; R. L. Ragg; A. E. Sutton-Jones; G. O. Venn; F. M. F. West, V.C.; C. L. Archbold; C. E. Chilton; J. A. Easton; H. J. Kirkpatrick; A. H. Montgomery; L. G. S. Payne; G. A. Walker. Group Captains D. H. F. Barnett, R.A.F.O.; A. P. Besley, A.A.F.; P. F. Canning; A. E. G. Collins, R.A.F.O.; W. J. Crisham; R. Faville; E. C. K. H. Foreman; H. P. Fraser, R.A.F.O.; N. G. Goodman; J. F. Hobler; R. C. Mead; H. W. Mermagen; A. D. Messenger; D. G. Morris; H. W. Pearson-Rogers; M. K. D. Porter; F. C. Read; C. Richdale; J. F. Roulston, R.A.F.O.; N. C. S. Rutter; Rev. A. McHardy; D. de B. Clark, A.A.F.; J. N. Browne, A.A.F.; W. W. Deane; A. H. Harrison; H. H. Hilliar; E. N. Lowe; E. H. McDonald (w.e.f. 13th November, 1944, since killed on duty); H. L. Maxwell. (See also AUSTRALIA and NEW ZEALAND.)

UNITED STATES AWARDS

Air Chief Marshal Sir Sholto Douglas, who was responsible for integrating all British and United States Air Force units in the Middle East, was presented with the Legion of Merit (degree of Chief Commander) by General Eisenhower on 12th December, 1944, at a U.S. Army Headquarters in London, "for exceptionally meritorious conduct in the performance of outstanding services." At an airfield near Paris, on 3rd November, General Eisenhower had also conferred this decoration on Air Chief Marshal Sir Trafford Leigh-Mallory and Air Chief Marshal Sir Arthur Harris.

LOSS OF AIR CHIEF MARSHAL SIR TRAFFORD LEIGH-MALLORY

It was announced on 17th November that the aircraft in which Air Chief Marshal Sir Trafford Leigh-Mallory, K.C.B., D.S.O., and Lady Leigh-Mallory were travelling to South-East Asia, and which left this country on 14th November, had not arrived at its destination. The Air Chief Marshal was on his way to take up his new appointment as Air Commander-in-Chief, South-East Asia Command. A month later, he was presumed to have lost his life on 14th November.

Sir Trafford Leigh-Mallory was 52, and had served for over thirty years, having been commissioned, after leaving Magdalene College, Cambridge, on 15th August, 1914, in the 4th Battalion, The Lancashire Fusiliers, S.R. He was seconded to the R.F.C. on 7th July, 1916, and for service in France was awarded the D.S.O. on 1st January, 1919. In 1921 he joined the School of Army Co-operation, and from 1927 to 1930 (having served meanwhile at the Air Ministry and qualified at the R.A.F. Staff College) he was in command of the School. On 5th March, 1930, he lectured at the Royal United Service Institution on "Air Co-operation with Mechanized Forces." He afterwards became an Instructor at the Staff College, Camberley, was appointed Deputy Director of Staff Duties, Air Ministry (1932), attended the Imperial Defence College (1934), and was Senior Air Staff Officer in Iraq (1935-37). During the present war he had commanded both No. 12 and No. 11 Fighter Groups, which took part in the Battle of Britain; he was A.O.C. in C., Fighter Command, from November, 1942; and Air Commander-in-

Chief, Allied Expeditionary Air Force, under General Eisenhower, from its constitution in December, 1943.

Personnel

Royal Observer Corps.—In the House of Commons on 6th December, the Secretary of State for Air, Sir Archibald Sinclair, said that it was not yet possible to extend to the Royal Observer Corps generally the relaxations recently authorized for the other Civil Defence Forces. Those relaxations had, in fact, made it even more important than it was before to ensure that timely warning was given to the R.A.F. of the approach of enemy aircraft; moreover, the public air raid warning system depended largely on information supplied by the Royal Observer Corps, and any relaxation of the watchfulness of the Corps would involve unjustifiable risks at present. The Corps also performed very valuable services in identifying and reporting friendly aircraft which were in difficulties. In this way they helped to save the lives of many Allied airmen. He paid a tribute to the services rendered by the members. They numbered over 30,000, and included 23,000 part-time members.

Air Training Corps.—On 9th January, it was announced that more than a quarter of a million glider launchings had been made at A.T.C. gliding schools. The number of such schools for the A.T.C. was over eighty, and during 1945 the total is expected to rise to a hundred.

Transport of Wounded.—The complement of wounded troops brought home by the R.A.F. Transport Command in time to spend Christmas Day in an English hospital included the 50,000th casualty. Air evacuation began on 12th June (D-day plus 6), when 11 casualties were flown home from an emergency landing strip in Normandy. By the end of June, the total was 2,101, and by the end of July, 7,581. August was the heaviest month with 8,955. These aircraft have no Red Cross markings because on their outward journey they carry cargoes of war freight, mails, medical supplies and key personnel, and so cannot claim freedom from enemy action. Up to 30th December, they had taken out about 15,000 tons of such war freight and passengers. Not a single aircraft had met with any mishap when carrying wounded, though more than 4,000 sorties, representing some 1,500,000 miles flying, had been made.

Fighter Command Revived

On 23rd October, the Air Ministry announced that the name of Fighter Command had been revived for the air forces allocated to the defence of Great Britain. The title of Air Defence of Great Britain thus ceased to exist, and Fighter Command, under its Air Officer Commanding-in-Chief, Air Marshal Sir Roderic Hill, had reverted to the control of the Air Ministry. It was in March, 1944, that the name was changed to A.D.G.B.

Notable Flights

In October, a Lancaster aircraft from the Empire Central Navigation School, Flying Training Command, began the first round-the-world flight of an R.A.F. machine. Its object was to study navigation and to demonstrate the latest equipment likely to be of use in the Pacific area. The outward route covered Montreal, Washington, San Francisco, Honolulu, Canton Island, Samoa, New Zealand and Australia, and the return route Ceylon, Karachi and Cairo. Wing Commander D. C. McKinley, D.F.C., was in charge.

Two new feats by the R.A.F. Transport Command were recorded in the Air Ministry's statistical review for October. The Command Navigation Officer, Wing Commander F. A. Aikman, with Flight Lieutenant C. F. Cutting as navigator, piloting a Mosquito on a survey flight, landed at El Adem, near Tobruk, in five and a half hours after leaving England, and set up an average speed of 335 miles an hour.

At the end of the month, a Liberator of the Command's Atlantic Transport Group flew 5,600 miles from Natal (Brazil) to Montreal in 26 hours 52 minutes overall time.

The aircraft carried a maximum load and the flight was officially described as a "performance without precedent among flights along the links of the American Continent."

WOMEN'S AUXILIARY AIR FORCE

SERVICE IN BELGIUM.—The system of substituting R.A.F. staff by members of the W.A.A.F. on duties where the nature of the work and conditions are suitable was extended to Belgium in November. Some of the first girls to be employed had already had experience of active service in Normandy.

SERVICE IN CEYLON.—On 10th January, it was reported from Colombo that, with the arrival by air from Delhi of an advance party of the W.A.A.F., there were five British women's service organizations represented in Ceylon—the W.R.N.S., W.A.A.F., Q.A.I.M.N.S., F.A.N.Y., and V.A.D.

DOMINIONS AND COLONIES

AUSTRALIA

NEW YEAR HONOURS.—The following were among the New Year Honours conferred by the King :—

C.B. (Military).—Air Vice-Marshal T. E. V. Hurley, R.A.A.F., Director-General of Medical Services.

C.B.E. (Military).—Air Commodore R. J. Brownell, R.A.A.F.

CANADA

NEW YEAR HONOURS.—The following were among the New Year Honours conferred by the King :—

C.B. (Military).—Air Vice-Marshals R.C.A.F., J. L. E. A. de Niverville ; A. Ferrier ; K. G. Nairn.

George Cross.—On 27th October, it was announced that the King had approved the award of the George Cross to—

Air Commodore Arthur D. Ross O.B.E., R.C.A.F.

One night in June, 1944, an aircraft in attempting to land crashed into another which was fully loaded with bombs, broke into three parts and began burning furiously. Air Commodore Ross, with assistance, extricated the pilot and rear gunner. Ten 500-lb. bombs in the second aircraft, eighty yards away, exploded, and the arm of Air Commodore Ross was practically severed between the wrist and elbow. He calmly walked to the ambulance, and an emergency amputation was performed on arrival at station sick quarters. Two N.C.O.'s who assisted in the rescue work were awarded the George Medal, and two others the British Empire Medal—all Canadians.

TERMINATION OF THE JOINT TRAINING PLAN.—On 17th November the Secretary of State for Air, Sir Archibald Sinclair, announced in the House of Commons that after careful review of the war situation, and in particular of our air crews' position, it had been decided that the joint air training plan in Canada shall not continue after 31st March next. This announcement was being made that day by Mr. Power, the Canadian Minister for Air. If, however, the war situation so developed that expansion was again necessary, skeleton training staffs and airfields would be retained. The original agreement provided for joint training in Canada to continue to 31st March, 1943, but by a further agreement negotiated in March, 1942, the scale of training in Canada was stepped up and the scheme extended to 31st March, 1945. It was because of the favourable war situation that the present step was possible. Simultaneously with the winding up of the joint air training plan in Canada, training in South Africa and Southern Rhodesia was being considerably reduced. Arrangements had, however, been made with the Canadian Government to train a certain number of United Kingdom air crews in R.C.A.F. schools

after the final date of the plan, 31st March, 1945. Sir Archibald concluded with a tribute to the great debt which we and the Allied nations—who had also benefited through the air training in Canada—owed to the Canadian Government as administrators of the scheme, and to the R.C.A.F.

NEW ZEALAND

NEW YEAR HONOUR.—The following was among the New Year Honours conferred by the King :—

C.B.E. (Military).—Group Captain K. L. Caldwell, R.N.Z.A.F.

APPOINTMENT.—It was announced on 17th October that Air Commodore Sir Robert Clark-Hall had been appointed Air Officer Commanding No. 1 Islands Group of the New Zealand Air Force, in place of Air Commodore M. W. Buckley, who was returning to New Zealand for duty.

SOUTH AFRICA

PRESENTATION.—On 2nd January, Mr. Heaton Nicholls, High Commissioner for South Africa, received a gold cup " presented by the R.A.F. to the South African Air Force as a token of comradeship and esteem, 1945," in the Air Council room at the Air Ministry. It was the gift of Wing Commander E. J. R. Hack, who has presented similar cups on behalf of the R.A.F. to the Air Forces of Australia and New Zealand, the R.C.A.F., the Women's Section of the R.C.A.F., and the Southern Rhodesia Air Force. The cup was formally handed over by Air Marshal Sir Bertine Sutton, who recounted the exploits of the South African Air Force.

REVIEWS OF BOOKS

GENERAL

Service Pay. By Captain Russell Grenfell, R.N. (Eyre and Spottiswoode, London.) 10s. 6d.

It is impossible to review this book in any detail, for it is such a mass of financial statements, comparisons and deductions that it must be read from cover to cover if its value to the Services is to be appreciated.

Captain Grenfell's survey of the past and present treatment of officers and men alike in the matter of pay is such a factual condemnation of apparent indifference and of tortuous parsimony that it would seem impossible that it should be ignored, and that no notice should be taken of his plea for their case to be reviewed.

He has marshalled his facts in the most painstaking array, and presented them most arrestingly. They should open the eyes of his readers to a state of affairs which is wont to be clouded by the complexity of rules and regulations or for the study of which too few of them have time, or for that matter inclination, seeing that they can do little about it.

It is for the latter reason, particularly, that this remarkable exposition deserves the closest study by those who can.

NAVAL

Naval Life and Customs. By Lieutenant-Commander John Irving, R.N. (Sherratt and Hughes, Altrincham.) 3s. 6d.

In this little booklet the author adopts the novel method of portraying naval life and customs by taking his readers for an imaginary tour round a man-of-war.

We step on board a picket-boat and are straightway introduced to Service ways, manners, and ensignia. Arriving on board, a visit to the officers' quarters leads to a dissertation on badges of rank and the origin of naval uniforms. The Captain's Cabin, the Wardroom and the Gunroom are shown us in their typical settings. We are given a slight sketch of Gunroom life—past and present.

Thence we go forward along the mess-decks and are given a glimpse of Lower-Deck habits and customs.

A couple of chapters are devoted to daily routine and the activities of the ship's company from "Call the Hands" to "Pipe Down." Finally, there is an account of what happens when a man-of-war puts to sea.

As a readable little study of the inside of the Navy, this can be recommended for its interest to the general public, but there are a number of slips which will be apparent to the naval critic, and which preclude this slight volume from merit as an historical record. It purports to describe the Navy of to-day; yet it gives the impression of having been written around the Service as it was some fifteen years ago at least, with touches here and there to give it an up-to-date appearance. For example, the Glossary includes words which are no longer current, indeed some which really have nothing to do with the Navy, while others which have become part of mess-deck slang are not mentioned. Elsewhere there are more palpable errors, *e.g.*, seven bells are not struck at 7.30 p.m.; the modern way of writing time is "1300" not "1300 hours"; divisions do not follow breakfast without the hands turning to; quarters are not at 1545; and the navigating officer of to-day would not order the quartermaster to steer "South-West."

In short, this publication needs a deal of editing to make it as valuable an addition to naval literature as it should be.

Merchantmen at War—The Official Story of the Merchant Navy, 1939–1944. (H.M. Stationery Office.) 1s. 9d.

Although this is only one of the series of booklets published by the Ministry of Information for the general public who like their history potted, it gives a live and human review of the Merchant Navy in this war and one worth preserving.

The first five chapters deal with the men—their training; how the Royal Navy instructs and advises the Masters in their responsible tasks; the handling of armaments; the wonderful endurance of those left to their fate by a callous enemy; and the measures taken to rescue them.

Then come chapters dealing with the whole business of shipping in war time—the battling with the various forms of attack; routeing; cargoes; adventures and misadventures all over the world. Lastly we read short accounts of some of the epics of the War—" the Convoy must go through " to Malta; the part played by the Merchant Navy in the first great landing, in North Africa; in the Sicily landing; and finally there is a mere thumb-nail sketch of the crowning achievement of the Royal Navy's great partner in the transportation of the armies of liberation to Normandy.

Not the least valuable as well as interesting feature of this excellent production is the collection of well selected photographs which are so freely dispersed throughout its pages. It is wonderful value at the price and deserves a place in every library.

MILITARY

Jungle Warfare. By Major-General H. Rowan-Robinson, C.B., C.M.G., D.S.O. (Hutchinson and Co., Ltd.) 5s.

This is an interesting and instructive little book containing much useful information and advice. In the course of only sixty pages the subject is dealt with quite comprehensively, and every aspect of the art of jungle warfare is examined.

Infantry Attacks. By General Field-Marshal Erwin Rommel. Translated from the German by Lieut.-Colonel G. E. Kiddé, United States Army. (Washington. The Infantry Journal, 1944.) Price in America, $3.00.

Rommel wrote this book in 1937 when, as a Lieut.-Colonel, he was an instructor in infantry tactics at the Dresden Military Academy. It is a narrative of experiences as a junior officer of infantry in the War of 1914–1918, in fighting against French, Rumanians and Italians. Each chapter deals with tactical episodes in which Rommel personally took part, and he includes many summaries of the lessons to be learnt from the particular operation described. Most of these lessons are still valid; for instance: " War makes extremely heavy demands on the soldier's strength and nerves. For this reason make heavy demands on your men in peace-time exercises." A number of good sketch-maps and diagrams elucidate the text.

AIR

Per Ardua. The Rise of British Air Power, 1911–1939. By Hilary St. George Saunders. (Oxford University Press.) 15s.

This is a concise history of Service aviation up to the outbreak of the present war.

The first two chapters are devoted, the one to heavier-than-air and the other to lighter-than-air craft in their embryo stage, and to gallant pioneers in the air such as Reynolds, Cody, Samson, Gregory, Longmore, Gerrard, Cockburn, and Jullerot—the French instructor of many hundred Service pilots.

Of the remaining seventeen, thirteen chapters are devoted to the achievements and development of the Royal Flying Corps and the Royal Naval Air Service. The rest of the book deals with the early days of the Royal Air Force; the makings of that great Service; its crowning glory at the end of 1918; and the devastating aftermath when, despite Trenchard's efforts, mad idealism caused it to be reduced to a mere shadow, with the tragic consequences from which we are suffering to-day.

The author tells his story quietly, yet effectively, letting events speak for themselves, but here and there with a touch of cynical humour as when he recalls a Member of the Army Council in 1908 asserting that it would be impossible for anybody moving at the minimum flying speed of 40 m.p.h. to see anything. To this might be added the incident of a Sea Lord who, at a much later date, was still alluding to flying as merely "a circus performance."

Such, we are shown, was the mentality in high places which continually blocked the development of the Navy's and Army's air services. On the other hand, air enthusiasts of those days were often the worst advocates for their cause, because too frequently they ignored the very definite limitations of the early aircraft and were wont to prophesy far more than they could perform. In these very readable pages we can now get a longer view of both the opposition and achievements in those years of controversy. If they err, it is on the side of chronicling the successes rather than the failures; but the perspective is not unduly distorted.

On balance, Mr. Saunders seems to have devoted more space to the R.F.C. and R.A.F. than to the R.N.A.S. and Fleet Air Arm; and there is still room for a similar short history to be devoted to the essentially naval side of air work. Nevertheless all three Services will appreciate that this is distinctly an addition to their literature. There are some excellent photographs.

Middle East: 1940-1942: A Study in Air Power. By Philip Guedalla. (Hodder and Stoughton, Ltd.) 10s. 6d.

It was at the request of the Air Ministry that Mr. Guedalla was induced to write this book. As, however, he did not pretend to any special knowledge of the subject or of aerial matters in general, he flew 20,000 miles in order to study the countries of the Middle East, to obtain the right atmosphere and to discuss past operations with Air chiefs concerned.

He deals first with the nature of the theatre, the rise of the Air Force, with the development of its tactics and with relative strengths. He then proceeds to describe the various operations that took place from June, 1940, to December, 1942, giving a chapter to each campaign so far as those campaigns could be isolated.

His theme is centred largely on Egypt. He shows that country to have been important to us for many reasons. Formerly, it had been difficult to invade except by a Power in command of the sea, for it was surrounded on three sides by vast deserts. Oil and the internal combustion engine had, however, deleteriously affected its security. Tanks, if they could be supplied, could traverse the sandy wastes and aircraft could fly over them. The situation at sea also had changed substantially in that command depended not alone on the calibre of ships' guns, but also in high measure on aerial strength and the possession of suitably placed air bases.

In June, 1940, Italy joined Germany and France surrendered. Egypt then became plainly vulnerable. The contingency that Mussolini might join the hostile ranks had been faced without grave anxiety because it had been expected that the French would be with us until the end. Their secession left open many obvious joints in our armour. Wavell, with 55,000 men, was confronting armies numbering 415,000. He was markedly inferior also in the air, having only some 90 fighters and 150 bombers, mostly of obsolescent types, to compete with 600 modern Italian machines which could be quickly reinforced if required by other Axis aircraft from Europe. Moreover, even if the British should manage to hold their own in battle, it was quite possible that they would succumb to lack of supplies and reinforcements; for the Axis, by its domination of the air over the Sicilian channel, denied the Mediterranean to our shipping, and Italy was in a powerful position in the Red Sea to sever our other supply route—that past the Cape to Suez. Nevertheless, after two and a half years of swaying battle, Egypt had, thanks largely to the magnificent performance of British airmen, been made secure and Montgomery's veteran army was marching triumphantly on Tripoli.

Mr. Guedalla rates Malta next in importance to Egypt. Regarded as barely tenable under the close threat of enemy air action from Sicily, it had been abandoned some years previously by the larger units of the Navy and, in June, 1940, was on the point of being abandoned also by the R.A.F. Fortunately, however, crated Gladiators were discovered there and put into the air. One was quickly shot down, but the other three—Faith, Hope and Charity—maintained a dogged fight until reinforced some three months later. On this performance, it was decided to make of the island an aerodrome; and, as such, acting both defensively and against enemy supply lines, offensively, it made a notable contribution to victory. It survived its three years siege, however, only by the narrowest of margins.

In depicting the campaigns, the author lays stress on certain features of operations in three dimensions. The first is that warfare is now largely a struggle for aerodromes. The second is the need, especially in the case of the weaker side, to make full use of the flexibility of an air force. The third is that the three Services should be treated as a single instrument of war. The fourth—the realization of which by British commanders went far to redress the initial adverse balance of force—is the need for the maintenance and quick recovery and repair of damaged machines. The last is that an air force should possess a high degree of ground mobility, that is, it should be capable of quickly constructing or repairing airfields and transporting stores to them, so that the Army may never be delayed from lack of fighter support.

Thus the book, which is well illustrated by maps and by sketches of leading airmen, is of value both for its tale of skilful leadership and high heroism and for the lessons it suggests. It is sad indeed to think that it is the last we shall have from a particularly gifted pen.

Atlantic Bridge—The Official Account of R.A.F. Transport Command's Ocean Ferry. (H.M. Stationery Office.) 9d.

This is a fascinating little history of the birth and development of a service which has come to play a vital part in the War. It starts at the end of 1940 with the first ferry flight across the Atlantic by seven Hudsons—all of which arrived safely. These were followed closely by the pioneer (for the R.A.F.) crossings of flying boats—Catalinas. By the opening of 1941 this air delivery system had proved itself, and the Ferry Service grew rapidly.

We read of the planning and equipping of the great terminal air ports of Dorval, near Montreal, and Prestwick in Western Scotland. Bermuda, too, came into the picture for flying boats. In July, '41, R.A.F. Ferry Command was created.

In the Spring of that year, a northern trans-Atlantic route was surveyed, and in due course this Great Circle (shorter course) journey, with its touch-down air port at Gooze in Labrador, was being made as a matter of course.

The second half of the booklet (Part 4) deals with the " bridging " of the South Atlantic and the development of the air ferry service between the United States and the West Coast of Africa, linking eventually with Cairo.

Many personal experiences and a few good photographs brighten a very readable production.

ADDITIONS TO THE LIBRARY

GENERAL

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DIARY OF THE WAR, 1944

1st October.—Light coastal forces successfully engaged a heavily escorted enemy convoy off Ymuiden. One of our motor torpedo-boats was damaged and sunk.

In Holland the Allies continued to enlarge the Nijmegen salient. North-East of Nancy a successful advance was made.

The Russian advance into Yugoslavia continued.

The Admiralty announced that in operations extending from the Arctic Circle to the Ægean, H.M. submarines had sunk thirty-seven enemy ships and damaged at least ten others.

R.A.F. bombers made a night attack upon Brunswick and other objectives in Germany.

2nd October.—Allied forces continued to enlarge the Eindhoven-Nijmegen salient in Holland. An attack launched to the North of Aachen made steady progress.

U.S. heavy bombers attacked Cologne and Kassel in force and, later, Hamm.

The Polish forces in Warsaw surrendered to the Germans.

In the Adriatic sector of the Italian front the advance of the Eighth Army North-East of Rimini was checked at the river Fiumicino, which was in flood.

At night R.A.F. bombers attacked Brunswick and objectives in western Germany.

Coastal Command R.A.F. and aircraft of the Fleet Air Arm made a series of night attacks upon enemy shipping concentrated East and South of Den Helder.

3rd October.—In Holland, beyond Antwerp, Allied forces made progress towards Breda. The Nijmegen salient was expanded further. North of Aachen, in the region of Ubach, the Allies advanced against heavy opposition. Heavy fighting occurred and some progress was made in the region of Metz, East of Nancy and North-East of Epinal.

A large force of U.S. heavy bombers attacked industrial objectives at Gaggenau and Nurnberg, and a number of airfields in Germany. Eleven bombers were lost.

In the afternoon, at high tide, the R.A.F., using 12,000-lb. bombs, breached the sea dyke at Westkapelle, island of Walcheren.

The Russians captured the island of Dagö in the Baltic Sea. They made progress in southern Poland, in the Carpathian foothills towards the Czech border, and made a fresh crossing of the Rumania-Yugoslavia frontier.

4th October.—In Holland the Allies made progress North of Antwerp and towards Tilburg. Heavy fighting brought small gains near Urbach, North of Aachen. U.S. forces met with stubborn resistance at Fort Driant, South-West of Metz. At Dunkirk a truce was arranged to allow of the evacuation of civilians.

The R.A.F. bombed a new U-boat base at Bergen, where four of the submarines were hit. None of our aircraft were lost.

The Russian advances upon Belgrade continued from the North and, South of the Danube, from the East.

At night units of " Land Forces Adriatic " (see 27th September) entered Patras in the northern Peloponnesus. The Balkan Air Force attacked gun positions on the island of Corfu, swept the Corinth canal, and bombed objectives in Croatia and Yugoslavia. Fighters attacked the aerodromes in the Athens area.

5th October.—The Allies crossed the Dutch frontier North of Antwerp, and progressed towards Tilburg. The advance continued North of Aachen, and heavy fighting persisted in the Metz and Nancy regions.

A large force of U.S. heavy bombers attacked the railway centres of Rheine and Cologne and German airfields in the Münster area. Sixteen enemy aircraft were destroyed. Thirteen bombers and five fighters were lost.

The Russian advance in Yugoslavia continued in collaboration with Marshal Tito's forces. Pancevo was captured.

Marshal Tito met Bulgarian delegates and reached agreement on the collaboration of Yugoslav and Bulgarian forces.

The island of Levitha (near the Dodecanese) was captured after bombardment by H.M. ships " Aurora " and " Catterick," which landed detachments.

The U.S. Navy Department announced that American submarines had sunk eleven more Japanese vessels in Far Eastern and Pacific waters.

The R.A.F. made a heavy night assault on Saarbrücken where 350,000 incendiaries and a great weight of high explosive were dropped. Objectives in Berlin and in western Germany were bombed also, and mines were laid in enemy waters. Three aircraft were lost.

6th October.—Moving against the southern bank of the Scheldt estuary, Allied forces crossed the Leopold canal. North of Antwerp the Allied advance into Holland continued, and progress was maintained inside Germany, North of Aachen. Heavy fighting continued in the regions of Metz, Nancy, Lunéville and Epinal, and West of Belfort.

More than 1,250 U.S. heavy bombers carried out widespread operations over Germany, attacking war factories in Berlin, oil plants at Hamburg, and a number of aerodromes. Twenty-three enemy aircraft were destroyed, and also thirty-six seaplanes at Baltic stations. Twenty-eight bombers and ten fighters were lost.

The R.A.F. made a bombing attack by day upon oil centres in the Ruhr.

Russian forces crossed the Hungarian frontier.

Allied aircraft bombed German aerodromes in Greece and attacked enemy communications and other objectives in North-East Italy, Yugoslavia and Albania.

At night Russian bombers attacked the port of Memel.

At night the R.A.F., in great force, attacked Dortmund, Bremen, Berlin and Ludwigshafen. Twelve bombers were lost.

7th October.—Fighting continued on the Leopold canal and North of Antwerp. The sea-dykes on Walcheren were attacked by R.A.F. bombers. Slight progress was made at many points in the Allied front from Holland to the Vosges.

About 1,400 U.S. heavy bombers attacked targets in Central, East and North-East Germany; attacks by 700 R.A.F. bombers were made on communications in the Cleves-Emmerich areas, and the Kembs (Rhine) dam, which was breached.

Russian forces extended their hold on the island of Oesel; closed in on Riga; and advanced in Hungary and Yugoslavia.

Targets in the Vienna area were attacked by 800 U.S. heavy bombers from Italy.

At night Russian aircraft bombed Breslau.

8th October.—Heavy fighting continued on the Leopold canal, but the Allies made progress North of Antwerp. The encirclement of Aachen proceeded. Limited advances were made in the regions of Metz and Nancy and in the Vosges foothills.

The Russians continued their operations on the island of Oesel and broke the German resistance in the region of Shavli (Lithuania) after four days' fighting. Operations continued, also, in Hungary and Yugoslavia.

On the Arakan front (Burma) Japanese detachments were driven back.

9th October.—Allied troops landed from the sea on the southern shore of the Scheldt estuary. Fighting on the Leopold canal continued. The Allies advanced North of Nancy and in the Vosges foothills.

R.A.F. Coastal Command attacked an enemy convoy off the Norwegian coast, sinking three vessels.

Light coastal forces of the Royal Navy fought a number of engagements with enemy flotillas off the Dutch coast, sinking an armed trawler and a minesweeper and damaging other vessels.

More than 1,100 U.S. heavy bombers attacked targets in the Schweinfurt, Coblenz and Mainz regions. Five bombers and three fighters were lost.

The Russian operations continued on Oesel, in the regions of Riga and Shavli, in Transylvania and Hungary. In Yugoslavia Soviet troops forced the river Tissa.

It was announced that **the Prime Minister** had **arrived in Moscow to confer with Marshal Stalin.**

Troops of "Land Forces Adriatic" occupied the Albanian port of Sarande.

At night Russian aircraft bombed Libau and Riga.

At night the R.A.F. bombed Bochum (Ruhr), Wilhelmshaven and other objectives in western Germany. Seven aircraft were lost.

10th October.—Slight gains were made by the Allies on the Scheldt estuary and the Leopold canal. The main Aachen-Cologne highway was cut and the Aachen garrison given twenty-four hours to surrender. Slow progress was made in the Vosges.

The Russians continued to clear the island of Oesel; captured Palanga, on the coast South of Libau, and Sakiai (Lithuania); and continued to advance in Transylvania and Hungary. Russian and Yugoslav forces cut the Nish-Belgrade railway.

British forces entered Corinth.

The report was published of the British delegation which had attended the discussions at Dumbarton Oaks (Washington), with U.S.A., U.S.S.R. and China representatives, on the "maintenance of peace and security after the war."

U.S. carrier-borne aircraft attacked Luzon (Philippines).

In a night action off the island of Vir (northern Dalmatia) light coastal forces of the Royal Navy sunk at least ten enemy vessels.

At night Russian aircraft bombed Libau, Riga and also Tilsit (East Prussia).

11th October.—The Allied landings on the southern shore of the Scheldt were reinforced. A Canadian advance cut off the islands of Zuid Beveland and Walcheren. The attack on Aachen was resumed, the Germans having refused to surrender. In this area enemy counter-attacks were repulsed.

U.S. heavy bombers attacked Cologne and Coblenz.

The King left England by air to visit the Western Front.

Russian forces made progress North and South-East of Memel. They made notable advances in Transylvania and captured Cluj. In Yugoslavia, together with Yugoslav troops, they pressed forward North-East of Nish.

In Italy the Eighth Army made progress towards Cesena.

12th October.—Further reinforcements were landed by the Allies on the southern shore of the Scheldt estuary. Fighting on the Leopold canal continued. On the eastern side of the Dutch salient Allied troops reached Overloon. The fight for Aachen continued, German counter-attacks in the vicinity being repulsed.

Allied heavy bombers attacked the German gun positions covering the approaches to Antwerp, an oil-plant in the Ruhr and an aircraft works at Bremen.

U.S. heavy bombers attacked objectives at Bremen and Osnabruck.

R.A.F. Mosquitos made long-range attacks from home bases on enemy airfields in Czechoslovakia and Yugoslavia.

The Russians pressed on towards Riga and Memel. In Transylvania they captured Oradea Marc and in Hungary continued an offensive South-West of Debreczen. With the Yugoslavs they made progress South-East of Belgrade.

The Germans withdrew from Athens.

13th October.—The Allies made some progress North of the Leopold canal. Fighting in Aachen continued. Several counter-attacks North of the city were repulsed.

Riga was captured by Russian forces.

At night Russian bombers attacked Memel and Tilsit.

The R.A.F. made a very heavy night attack upon Duisburg (Ruhr).

14th October.—In Holland the Allies made a further crossing of the Leopold canal. Fighting in and near Aachen continued.

The R.A.F. repeated their attack on Duisburg by daylight, over 4,500 bombs being dropped upon the town in twenty-five minutes.

A large force of U.S. heavy bombers attacked objectives at Cologne and in the Saarbrücken and Kaiserlautern areas. Fourteen bombers and eight fighters were lost.

Russian progress continued South of Riga, in northern Transylvania and, with Yugoslav forces, South and South-East of Belgrade.

U.S. heavy bombers, in force, bombed Japanese installations in Formosa, doing heavy damage.

Athens and the Piræus were occupied by British troops.

At night Russian aircraft bombed Memel, Libau and Tilsit.

The R.A.F. again attacked Duisburg at night, also bombing objectives at Hamburg, Berlin and Brunswick.

15th October.—The Allied troops landed on the southern shore of the Scheldt estuary joined up with the general line. An advance was made North of Antwerp, and pressure on Aachen continued. Satisfactory progress was made in the Vosges foothills.

On this and the previous day carrier-borne aircraft of the Home Fleet made successful attacks against Norwegian shore installations and shipping off the coast.

The R.A.F. secured direct hits with the new 12,000-lb. bomb upon the Sorpe dam (Ruhr).

A large force of U.S. heavy bombers attacked Cologne again, and oil-plants near Düsseldorf.

On the Karelian front, with naval support, the Russians capturep Petsamo. Their advances continued West of Riga, in northern Transylvania and in Yugoslavia.

The Hungarian Government (Admiral Horthy) broadcast by Budapest radio a request for an armistice.

The Germans announced the death of General Field-Marshal Rommel.

Allied land, sea and air forces captured the island of Naxos (Ægean).

U.S. fighters attacked and destroyed a land convoy on Mindanao (Philippines).

On this and the two previous days 159 Japanese aircraft were shot down by U.S. forces off Formosa

At night Russian aircraft attacked Insterburg (East Prussia).

At night the R.A.F. bombed Wilhelmshaven naval base and objectives in Hamburg. We lost eleven aircraft in operations which also included attacks upon airfields and the laying of mines in enemy waters.

16th October.—The Allies made steady progress North of the Leopold canal. Fighting in Aachen continued and East of the city German counter-attacks were repulsed.

The King returned to London after a five-day tour of the battle areas in France and Belgium.

The Russians continued to advance West and South-West of Riga; in northern Transylvania, where Rumanian troops participated and Borsa was captured; and in Yugoslavia in conjunction with Yugoslav and Bulgarian forces, Nish was captured and fighting took place in Belgrade.

In Italy the Eighth Army approached Cesena both from the East and the South.

Troops were successfully landed on Lemnos by the Royal Navy.

U.S. aircraft sank a Japanese cruiser in the South China Sea and destroyed much shipping in the docks at Kowloon.

U.S. heavy bombers, using bases in China, renewed the attack upon objectives in Formosa (see 14th October).

At night Russian aircraft bombed the railway centres of Insterburg, Gumbinnen and Stalupencu (East Prussia).

Bombers of the R.A.F. made a heavy night attack upon the railway yards at Zagreb (Yugoslavia).

17th October.—The Allies made satisfactory progress in the Scheldt "pocket" and, on the eastern side of the Dutch salient, approached Venraij. Fighting continued in Aachen. Progress against strong opposition was made in the Vosges foothills.

Cologne was heavily attacked by a large force of U.S. bombers. The R.A.F. widened the breaches in the Walcheren dykes.

The Russians continued their operations South and South-West of Riga, and, together with Rumanian troops, in northern Transylvania. Fighting in Belgrade continued.

Allied heavy bombers from Italy attacked objectives near Vienna and in Upper Silesia, and communications in southern Hungary and northern Yugoslavia.

The island of Scarpanto (between Rhodes and Crete) was occupied by a landing party of the Royal Navy.

Naval and air forces began a successful attack upon the Japanese occupied Nicobar islands (Bay of Bengal).

U.S. heavy bombers, flying from China, bombed objectives in Formosa.

At night Russian aircraft bombed Goldap (East Prussia).

18th October.—In Holland, South of the Scheldt, the Allies closed in towards Breskens. On the East of the Dutch salient Venraij was captured. Fighting continued in and near Aachen.

The R.A.F. bombed objectives at Bonn. U.S. heavy bombers attacked Cologne and Kassel, losing ten aircraft besides twenty-three of the fighter escort.

In Latvia the Russians continued to advance West of Riga. Other Russian forces crossed the Carpathians and entered Czechoslovakia. Fighting continued in northern Transylvania, where Russian and Rumanian troops were engaged. Russian, Yugoslav and Bulgarian troops made progress in Yugoslavia, where the Germans continued to resist in Belgrade.

The enemy garrison on Santorin island, North of Crete, surrendered to H.M. cruiser "Ajax."

In Burma (Chin Hills) Indian troops of the Fourteenth Army captured Tiddim.

19th October.—In Holland the Allies continued to close in upon the Scheldt "pocket." Fighting continued in and around Aachen.

A very large force of U.S. heavy bombers attacked objectives at Mainz and in the Ludwigshafen–Mannheim area.

Russian advances continued West of Riga (Latvia); in Czechoslovakia; in northern Transylvania with Rumanian troops; in Hungary; and in the Belgrade region with Yugoslav forces.

Mr. Winston Churchill left Moscow (see 9th October).

In Italy the Eighth Army entered Cesena.

Thebes was occupied by British "Land Forces Greece."

The R.A.F. in force attacked Stuttgart, Nuremberg, and also Wiesbaden at night. We lost nine aircraft.

20th October.—Allied forces made a successful advance North-East of Antwerp and in the Scheldt "pocket." American troops proceeded with their occupation of Aachen, where many Germans surrendered. East of Nancy Allied fighter-bombers made a successful attack upon the dam at Dieuze.

Russian and Yugoslav forces completed the liberation of Belgrade. In Hungary the Russians captured Debreczen.

Allied heavy bombers from Mediterranean bases attacked targets in Czechoslovakia, southern Germany, and the Milan region.

Marshal Tito's forces were reported to have captured the Adriatic port of Dubrovnik.

In Greece British forces approached Lamia, from which the Germans were reported to have withdrawn.

A powerful **U.S. force made a successful landing on the island of Leyte** (Philippines).

21st October.—Allied forces closed in on Breskens (Scheldt "pocket"), and pushed forward North of Antwerp. **In Aachen the German commander surrendered** the remainder of his forces.

R.A.F. Coastal Command made a successful attack upon shipping in the harbour of Haugesund (Norway).

Russian and Rumanian forces continued their successful operations in northern Transylvania, and Russians and Yugoslavs proceeded with their advance South and South-East of Belgrade.

In Italy the Eighth Army forced the Germans back to the river Savia and made progress up the Adriatic coast.

U.S. submarines engaged a Japanese squadron arriving off the Philippines from the South-West.

22nd October.—In Holland the Allies made notable progress in the Scheldt "pocket," capturing Breskens; an Allied attack was launched East of Hertzogenbosch and made good progress. In France advances were made in the Lunéville and Epinal sectors.

A large force of U.S. heavy bombers attacked targets in the regions of Hamm, Münster, Hanover and Brunswick. Later, the R.A.F. bombed the port and railway centre of Neuss (near Duisburg).

Russian forces reached the Norwegian frontier in the Petsamo area. Progress was made in northern Transylvania, in Hungary and in Yugoslavia, where the river Save was forced.

In Italy the Eighth Army captured Cervia on the Adriatic coast.

In Greece British forces entered Eubœa, which was reported clear of Germans.

Mr. Winston Churchill arrived home from Moscow having visited Cairo and the Italian theatre of war on the way.

At night Russian aircraft bombed the Latvian ports of Libau and Vindau.

The R.A.F. bombed Hamburg and other targets in western Germany at night.

23rd October.—The Allies continued to close in on the Scheldt "pocket." The Hertzogenbosch attack made steady progress. German counter-attacks were repulsed in the Lunéville sector.

Great Britain, the U.S.A. and the U.S.S.R. formally recognized the de Gaulle administration in France.

On the Karelian front the Russians made important advances in the area round Petsamo. A sweeping advance in Lithuania brought the Soviet forces to the region of Memel. The invasion of East Prussia from the North-East began. Russian advances continued in Czechoslovakia, northern Transylvania, Hungary and Yugoslavia.

In Greece British forces occupied Lamia.

U.S. air and naval forces engaged two Japanese squadrons off the Philippines. The enemy lost 150 aircraft, the Americans eight. The action was continued at night.

At night Russian aircraft bombed Darkhemen, Gumbinnen and Insterburg (East Prussia).

In spite of very bad weather, the R.A.F., in great strength, made a night attack upon Essen, dropping 4,500 tons of high-explosive and incendiary

bombs. Objectives in Berlin were bombed also. Eight of our aircraft were lost.

24th October.—Allied pressure upon the Scheldt "pocket" continued and the Hertzogenbosch advance made progress.

In East Prussia the Russian advance towards Insterburg continued. Farther South, Augustow (Poland) was captured. Progress was made in northern Transylvania and in Hungarian territory.

In Italy the Eighth Army pressed on towards Forli, on the Rimini-Bologna road (Via Emilia).

Off the Philippines U.S. aircraft made attacks upon the second Japanese squadron (see 23rd October), which was annihilated. A third Japanese squadron, approaching from Japan, was successfully engaged by day and night.

25th October.—In Holland the Allies continued to advance on a line from the Zuid Beveland isthmus to Tilburg and Hertzogenbosch.

The R.A.F., in great strength, made bombing attacks upon Essen and Hamburg. U.S. heavy bombers, also in great force, attacked Hamm and objectives at Hamburg-Harburg and in other parts of North-West Germany.

H.M. destroyers "Tanatside" and "Brissenden" sank an enemy tanker and an armed trawler off St. Nazaire.

The Russians crossed the Norwegian frontier in the Petsamo region and captured Kirkenes. Their progress in East Prussia continued, and North-West of Praga (Warsaw) Russian and Polish forces made an advance. By storming the towns of Satu Mare and Careii Russian troops completed the liberation of Transylvania.

In Greece Larissa was occupied by Greek partisans.

The naval and air action between U.S. and Japanese forces off the Philippines (see 21st, 23rd, 24th October) **ended in a heavy defeat for the Japanese,** whose losses were stated to be two battleships, four carriers, nine cruisers, and nine destroyers sunk; one battleship, five cruisers and seven destroyers severely damaged and possibly sunk; and six battleships, five cruisers and two destroyers damaged. The U.S. losses were one light carrier ("Princeton"), two escort carriers, two destroyers, one destroyer-escort ("frigate" class) and several smaller vessels. H.M.A.S. "Australia" sustained damage and casualties.

U.S. heavy bombers attacked objectives on the island of Kyushu (Japan).

26th October.—In Holland the Allies continued to advance on the front from the Beveland isthmus to Hertzogenbosch. In France progress was made North-East of Lunéville.

A large force of U.S. heavy bombers attacked targets at Bielefeld, Münster, Hanover and elsewhere in Germany. One bomber and one of the fighter escort were lost. In the afternoon R.A.F. bombers attacked the chemical works at Leverkusen without loss.

The Admiralty announced that H.M. cruiser "Jamaica" with a small naval force had carried winter supplies and reliefs to the Norwegian garrison of Spitzbergen.

In Czechoslovakia the Russians captured Mukacevo (province of Ruthenia). The Russian armies also made progress in Hungary and in East Prussia, where the German resistance was very strong.

At night the island of Piekopol, North-West of Rhodes, was occupied by troops landed from H.M. cruiser "Sirius."

27th October.—In Holland the Allies captured Groede, in the Scheldt "pocket"; and, in the advance north-westward, Bergen op Zoom was captured, Tilburg entered and Hertzogenbosch cleared of Germans. A counter-attack on the eastern side of the Dutch salient was checked.

In Czechoslovakia the Russians captured Uzhorod.

28th October.—In Holland, Allied forces further reduced the Scheldt "pocket." On the eastern side of the Dutch salient German counter-attacks near Meijel were repulsed.

The R.A.F. made a concentrated bombing attack upon Cologne in the afternoon. U.S. heavy bombers attacked the railway centres of Hamm and Münster.

Russian advances continued in the Petsamo region of Finland and also in Norwegian territory. North-West of Praga (Warsaw) Russian and Polish forces captured Jablonna. Progress was made in Czechoslovakia and Hungary and in Yugoslavia North-West of Belgrade.

The Armistice agreement between Bulgaria and the United Nations was signed in Moscow.

General Stilwell, Deputy Commander, South-East Asia, and Chief of the Staff to Chiang Kai-shek, was recalled by the U.S. Government.

29th October.—At dawn the R.A.F. attacked the "Admiral von Tirpitz," which had left Alten Fjord and was anchored off Haakoy island, four miles West of Tromsö. A direct hit on the battleship was scored by a 12,000-lb. bomb.

In Holland the Allies captured Cadzand and Zuidzande in the Scheldt "pocket" and made progress in Zuid Beveland. The advance along the front South of the Maas continued, Breda being occupied.

Russian forces captured the town of Cop in Czechoslovakia, and made further progress in Hungary.

In Northern Greece British forces captured Kozani.

At night R.A.F. bombers attacked Cologne.

30th October.—The Allies completed the occupation of Zuid Beveland, capturing Goes and reaching the Walcheren causeway. Retranchement in the Scheldt "pocket" was freed. The advance towards the lower Maas continued.

A large force of U.S. heavy bombers attacked communications and industrial targets at Hamm, Münster, Hamburg and Harburg. The R.A.F. bombed the synthetic oil-plant at Wesseling, near Cologne.

The Admiralty announced that carrier-borne aircraft of the Royal Navy operating with ships of the Home Fleet off Norway had sunk six enemy ships, driven a U-boat ashore, damaged 21 other vessels, and successfully attacked a number of shore installations. Mines were laid in Norwegian waters. Five aircraft (four pilots) were lost.

The Russians continued to advance in Czechoslovakia and in Hungary.

South-East Asia Command announced an advance of Chinese troops southwards from Myitkyina towards Bhamo, whilst British troops made good progress south-westward along the Mogaung–Mandalay railway.

At night R.A.F. heavy bombers had Cologne as their principal objective. Berlin was also attacked.

31st October.—In Holland there was heavy fighting on the Walcheren causeway. Allied forces reached the lower Maas North of Capelle. In South-East Holland the Germans were driven from Liesel.

The R.A.F. bombed the synthetic oil plant at Bottrop in the Ruhr.

The Russians continued to make progress in Hungary, advancing towards Budapest between the rivers Tissa and Danube.

The U.S. Navy Department reported that American submarines had sunk 18 more Japanese vessels in Far Eastern waters.

At night the R.A.F. dropped about 2,500 tons of high explosive and incendiaries on Cologne. Two attacks were made on Hamburg.

On the Western Front, where very unfavourable weather hampered operations, chief interest centred in the fighting to clear the approaches to Antwerp. Slow but steady progress was made both on the southern side of the Scheldt estuary and on the islands of Zuid Beveland and Walcheren, so that there was good prospect that the port, of vital importance to the supply of the Allied armies, would soon be in use. The surrender of Aachen marked the first important success on German soil.

The chief raids of the R.A.F. on Germany have been mentioned; but during October (the worst month of the year as regards weather) Bomber Command dropped the record total of 50,000 tons of bombs on German soil. The U.S. air forces dropped a rather larger quantity (51,500 tons).

In Western Europe casualties to the Imperial Forces had amounted to 103,842 by the end of August. By October the number of German prisoners captured by the Allied armies exceeded 650,000.

The Russians had almost completely cleared the Baltic States, but progress in East Prussia was necessarily slow, our Allies being under no illusion as to the strength of the German defences. In Czechoslovakia, in Hungary, where Budapest was now the goal, and in Yugoslavia, with Marshal Tito's troops, Soviet forces continued to advance.

General Alexander stated that his armies could not reasonably be expected to drive the Germans from the Po valley this winter. Having had to supply troops for France, he possessed only a slight superiority in numbers, although more powerful than the enemy in tanks and artillery, and dominant in the air. The Germans had engaged thirty divisions since May and lost 194,000 men, 340 tanks and 1,600 guns. Eleven nationalities were represented in the Allied armies, whose total losses in the same period were 116,150.

British air and naval forces, airborne troops and commandos and Greek partisans had played their part in pressing the retreat of the Germans from Greece, and had proceeded with the liberation of the Ægean islands. In the Ægean Sea more than 150 warships operated, the Royal Navy having the assistance of the Royal Canadian Navy, the South African Navy, and Greek, French and Polish vessels.

In Burma the advance of British and Chinese forces continued South and South-westward from the Myitkyina region, whilst the British were making further progress in the region of Tiddim (Chin Hills).

U.S. forces had broken through the Japanese advanced bases in the Pacific and landed in the Philippines, where the enemy seemed powerless to prevent the reconquest of the island of Leyte. The severe defeat suffered by the Japanese fleet (see 21st, 23rd, 24th and 25th October) was a heartening and important event.

The loss of the following of H.M. ships was reported: "Rockingham," destroyer; "Loyalty," "Britomart," "Hussar," minesweepers; "Gairsay," trawler; "Fratton," auxiliary.

1st November.—In the Scheldt "pocket" Sluis and Westkapelle were cleared of the enemy; fighting in Knocke proceeded. British troops landed from the sea on Walcheren island and captured a part of Flushing. Heavy fighting continued on the Walcheren causeway. In France, the Allies made progress South-East of Lunéville. French troops captured Baccarat in the Vosges foothills.

U.S. heavy bombers attacked synthetic oil plants at Gelsenkirchen and railway targets at Hamm and Coblenz.

On the Karelian front, Russian forces, with naval assistance, completed the clearing of the Petsamo region.

Heavy bombers from Italy attacked targets in the Vienna area.

British forces entered Salonika, which had been evacuated by the Germans.

At night the R.A.F. bombed Oberhausen (Ruhr) and fighter-bombers attacked Berlin and Cologne. In all, nine aircraft were lost.

2nd November.—The Allies continued to make progress on the island of Walcheren and fighting continued in the region of the Walcheren causeway. Beyond Aachen in the region of Hürtgen, an Allied advance captured Vossenack.

U.S. heavy bombers in great force attacked industrial oil targets in the Ruhr and at Merseburg, and the railway centres of Bielefeld and Rheine. In the course of the operations 180 German fighters were destroyed. R.A.F. bombers attacked the oil plant at Homburg (Ruhr).

In Italy the Allies made some progress towards Ravenna and Forli, the Eighth Army crossing the Ronco. Heavy bombers from Italy attacked targets in the region of Vienna.

Yugoslav forces were reported to have entered the Dalmatian port of Zara.

In northern Greece British patrols were in contact with the retreating Germans at Florina near the Serbian border.

At night the R.A.F. dropped more than 4,000 tons of bombs on Düsseldorf; Osnabrück was attacked also; and Coastal Command, with naval aircraft, harried German shipping off the Dutch coast.

3rd November.—The islands of Tholen and Nord Beveland were occupied by the Allies without opposition. On Walcheren island, where Allied landings had been supported by the bombardment of naval units, Domburg was captured

and most of Flushing cleared of the enemy. More progress was made towards the Maas estuary. South-East of Aachen fighting continued and Allied troops entered the town of Schmidt. In the Maritime Alps Sospel was occupied without resistance.

Objectives in Germany and Austria were attacked by Allied heavy bombers from Italy.

H.M. destroyers "Wheatland" and "Avondale" were reported to have sunk three enemy destroyers off the Dalmatian coast.

4th November.—On the island of Walcheren the capture of Flushing was completed and further progress made by the Allies. The advance towards the Maas estuary continued. On the eastern side of the Dutch salient Allied troops advanced in the direction of Venlo. Fighting continued South-East of Aachen, where the Germans had recovered possession of Schmidt.

A strong force of U.S. heavy bombers attacked oil-plants in the Hamburg–Harburg area and at Gelsenkirchen; targets near Hanover; and the railway centre at Saarbrücken. The R.A.F. bombed Solingen, South of the Ruhr.

The Admiralty announced that an important convoy on passage to Russia and back had suffered no loss or damage. Its carrier-borne escort aircraft had had a number of engagements with German submarines, three of which were sunk and others damaged. One enemy spotter aircraft was shot down. H.M. ships mentioned included the "Vindex" and "Striker," carriers; "Keppel" and "Whitehall," destroyers; "Loch Dunvegan," frigate; "Peacock" and "Mermaid," sloops; and the sloop "Kite" which was lost. All the engagements took place within the Arctic Circle.

In East Prussia the Russians beat off German counter-attacks North and South of Goldap. In Hungary they captured Szolnok, on the river Tissa.

U.S. heavy bombers raided Rangoon for the second time within two days. South-East Asia Command also reported further progress of the 5th Indian Division on the Tiddim–Fort White road.

At night the R.A.F. dropped over 3,000 tons of high explosive and incendiaries on Bochum in the Ruhr. Hanover and other places in western Germany were attacked also, and the Dortmund–Ems canal was breached.

5th November.—The Allies made good progress on Walcheren, where Nieuwland was freed. The advance towards the lower Maas continued. In Germany heavy fighting occurred near Schmidt.

U.S. heavy bombers attacked the railway centres of Frankfurt, Karlsruhe and Ludwigshafen and a large chemical works at Ludwigshafen. Twenty-four bombers and thirteen of the fighter escort were lost. The R.A.F. bombed Solingen in the afternoon.

The Russians repulsed German counter-attacks in the region of Goldap (East Prussia), and in Hungary continued their advance towards Budapest.

In Burma (Chin Hills) the Fourteenth Army, in its advance along the Tiddim–Fort White road, captured Kennedy Peak.

U.S. heavy bombers from India attacked the docks at Singapore and the oil refinery at Palembang, Sumatra.

At night the R.A.F. made two bombing attacks on Stuttgart.

6th November.—On Walcheren island the Allies captured Middelburg and Veere. At the mouth of the Maas they approached Willemstadt and fighting occurred at the approaches to the Moerdijk bridges. U.S. forces were heavily engaged at Vossenack, South-East of Aachen.

The R.A.F. made a heavy bombing attack on Gelsenkirchen. U.S. bombers attacked oil plants and industrial targets in the Hamburg-Harburg area and near Duisburg, also railway yards at Neumünster, North of Hamburg.

In Italy the Eighth Army drew nearer Forli from the South and South-West.

Marshal Tito announced that Yugoslav forces had liberated Monastir and now controlled the whole of the Yugoslav-Greek frontier.

Lord Moyne, British Resident Minister in the Middle East, was shot in Cairo and died later.

At night the R.A.F. bombed Coblenz and Gelsenkirchen, and other objectives in western Germany. Fifteen aircraft of Bomber Command were lost.

7th November.—On Walcheren island fighting continued North-East of Domburg; otherwise all resistance ceased. Allied forces closed up to the Maas estuary, but opposition continued near Moerdijk. U.S. troops were heavily engaged South-East of Aachen.

8th November.—The clearance of Walcheren island proceeded. On the Maas heavy fighting occurred at the Moerdijk bridge approaches. U.S. forces launched fresh attacks in the Hürtgen forest region, South-East of Aachen, and made good progress in a fresh advance East and North-East of Nancy.

The R.A.F. bombed the Homburg oil plant in the Ruhr. U.S. heavy bombers attacked the Leuna plant at Merseburg and the railway yards at Rheine.

At night the R.A.F. bombed objectives at Hanover and elsewhere in western Germany.

9th November.—In Holland **German resistance ceased on Walcheren island** and at Moerdijk. Bitter fighting continued South-East of Aachen in the Hürtgen area. The Allied advance continued East of the Moselle between Metz and Nancy.

A large force of U.S. heavy bombers attacked targets in the area of Metz. The R.A.F. bombed objectives in the Ruhr.

In Italy the Eighth Army captured Forli.

An Allied convoy, escorted by warships, reached Salonika.

In Burma the Fourteenth Army occupied Fort White. Chinese troops advancing in the North crossed the Irrawaddy and occupied Shwebo.

10th November.—In France the Allied advance made good progress in the Metz-Nancy sector. Chateau Salins was occupied. Heavy fighting continued in the Hürtgen region.

U.S. heavy bombers, in great force, attacked transportation targets and industrial plants in the Cologne and Frankfurt regions.

In Italy the Eighth Army made progress beyond Forli.

U.S. heavy bombers operating from China bases attacked Japanese-occupied Nanking.

At night the R.A.F. attacked Hanover.

11th November.—In France the Allies continued to advance in the Metz-Nancy sector and made slow progress in the Hürtgen region.

Attacks by heavy bombers were made on oil plants in the Ruhr, the R.A.F. having Castrop-Rauzel as its objective, whilst U.S. forces concentrated on Gelsenkirchen, also attacking the railway yards near Coblenz.

The Prime Minister arrived in Paris.

Great Britain, the U.S.A. and the U.S.S.R. were officially announced to have invited France to appoint a representative to the European Advisory Commission.

The Russians made further progress in Hungary. On Yugoslav territory Bulgarian forces occupied Ishtip and Veles.

The Admiralty announced that British submarines operating in Far Eastern waters had sunk forty-five and damaged sixteen Japanese vessels.

At night the R.A.F. attacked oil plants at Harburg (near Hamburg) and Dortmund.

12th November.—In France the Allies continued to make progress in the Metz–Nancy sector.

R.A.F. Bomber Command attacked the **German battleship "Admiral von Tirpitz"** lying in Tromsö Fjord. Several direct hits were made with 12,000-lb. bombs and the ship capsized and **sank.**

Russian forces continued to advance in Hungary. In Yugoslavia Bulgarian troops captured Kumanovo.

At night a North-bound enemy convoy was intercepted off the coast of Norway (Lister Fjord) by ships of the Home Fleet. Eleven enemy vessels were sunk and one was driven ashore. H.M. ships engaged included the "Kent" and "Bellona," cruisers; "Myngs," "Verulam" and "Zambesi," destroyers; and H.M.C. destroyer "Algonquin." Shore batteries opened heavy fire, but our ships suffered only minor damage and few casualties.

13th November.—In France Allied forces continued their advance North and South of Metz, and East of Lunéville.

Mr. Winston Churchill returned from France (see 11th November).

R.A.F. Coastal Command made a successful attack upon an enemy convoy off the Norwegian coast.

The Russians continued their advance in Hungary.

14th November.—Allied forces attacked in Holland towards Roermond. In France the attacks North and South of Metz were continued.

In Hungary the Russians captured the town of Solt.

15th November.—In Holland the Allied advance towards Roermond continued. In France progress was made in the Metz area and also in the Belfort region (river Doubs).

The R.A.F. bombed the synthetic oil-plant at Dortmund.

In Hungary the Russians took Josz Bereny. Bulgarian and Yugoslav forces captured Skople (Uskub) in Yugoslavia.

U.S. heavy bombers from Italy attacked targets in the Linz and Innsbruck areas.

The Balkan Air Force bombed Triana (Albania). U.S. heavy bombers struck at enemy communications in Yugoslavia.

South-East Asia Command announced progress in the Chin Hills (Burma) towards Kalemyo, our forces from the West and North having linked up.

16th November.—In South-East Holland the Allied advance towards Roermond continued. Farther South, and on both sides of Aachen, record air support was given to new attacks. Fighting continued in the Metz area, and ground was gained in the approaches to the Belfort gap.

Heavy bombers from Italy attacked objectives at Salzburg, in the Vienna area, and in Silesia, western Hungary and northern Yugoslavia.

In Italy the Eighth Army continued to advance beyond Forli towards Faenza.

South-East Asia Command announced the capture of Kalemyo (see 15th November).

17th November.—The Allied advance towards the Maas in the Roermond sector continued, and ground was gained East of Aachen. Farther South, advances were made at many points of the Allied front, notably in the Thionville and Metz areas and in the Belfort gap.

Strong forces of heavy bombers from Italy attacked objectives in Germany, Austria, Hungary and Yugoslavia.

18th November.—The Allies made progress in the Roermond sector and North and South of Geilenkirchen, which was taken. Farther South, they crossed the Luxembourg border into Germany and entered Buschdorf. U.S. forces closed in on Metz; the French went forward near Belfort; and along the Swiss frontier the Germans were in retreat.

19th November.—In South-Eastern Holland (Roermond–Venlo) the Allies continued to push forward towards the German frontier. Progress was made in the Geilenkirchen–Aachen sector and the advance into Germany from Luxembourg continued. Metz was encircled. In the Belfort gap Allied troops reached Sappois, within twenty miles of the Rhine.

A raid by heavy bombers upon the Japanese naval base at Brunel Bay (North Borneo) was reported to have damaged and set on fire a battleship and a heavy cruiser. Three bombers were lost.

20th November.—Allied forces made further progress towards the German frontier in the region of Venlo. Heavy fighting occurred near Geilenkirchen and East of Aachen (Eschweiler). Metz was entered; farther to the South-East the Allies approached Sarrebourg; and French forces drove through the Belfort gap and reached the upper Rhine.

The R.A.F. bombed objectives in the Ruhr. U.S. heavy bombers attacked the oil-plant at Gelsenkirchen and the railway yards at Münster.

Naval fighters operating from H.M. carrier " Carmania " were reported to have shot down two German flying boats in the North Atlantic.

Allied heavy bombers from Italy attacked the synthetic oil-refinery at Blechhammer, Silesia.

At night the R.A.F. made two attacks on Hanover and bombed Coblenz, also.

21st November.—In Holland the advance towards Venlo continued. Allied forces were still heavily engaged in the Geilenkirchen sector, and strong opposition was encountered beyond Aachen. The clearance of Metz continued ; Allied forces drove well to the East of Sarrebourg ; and the defences of the Saverne gap (Vosges) were passed. Progress was made in the region of Mulhouse.

Oil plants at Hamburg, Harburg and Merseburg and other targets in Germany were attacked by U.S. heavy bombers. The R.A.F. bombed the oil plant at Homburg in the Ruhr.

U.S. heavy bombers from China attacked the Omura aircraft works on Kyushu island (Japan). The docks at Nanking and objectives at Shanghai were bombed also. Twenty Japanese aircraft were shot down and forty-one damaged. Three bombers were lost.

In the evening R.A.F. Coastal Command made successful attacks upon enemy shipping off the Frisian islands, and in German inland waters.

At night the R.A.F. made extensive raids on Germany, bombing oil-plants in the Ruhr, the railway centre at Aschaffenburg, and objectives in Hanover, Stuttgart and Worms.

22nd November.—In Holland the Allies continued their advance eastwards in the Roermond-Venlo region. Progress was made in Germany East of Aachen. Metz was entirely cleared of the enemy. Saverne was occupied, most of Belfort was cleared and Mulhouse was liberated.

U.S. heavy bombers attacked Düsseldorf, Hanover, Stuttgart and Homburg.

Heavy bombers of the Balkan Air Force made a night attack upon the railway centres of Szombathely, eighty miles West of Budapest.

23rd November.—In Holland the Allies closed in towards Venlo. Heavy fighting occurred beyond Geilenkirchen and in the region of the Aachen-Cologne road. East of Metz the advance continued. French troops began to enter Strasbourg.

U.S. heavy bombers attacked the oil-plants at Gelsenkirchen whilst the R.A.F. bombed similar targets at Nordstern.

While continuing to make progress in Hungary the Russians captured Oepel in Czechoslovakia and finally secured the town of Cop.

In Italy, advancing towards Faenza, the Eighth Army attacked successfully across the river Cosina.

24th November.—The Allied advance continued, in Holland, towards Venlo. There was heavy fighting in the Geilenkirchen area and East of Aachen. Progress East of Metz continued. Most of Strasbourg was cleared of the enemy and an advance was made North of Belfort.

The Admiralty announced that one of H.M. submarines had made a successful attack upon a German convoy in Norwegian waters, sinking one, probably two, ships.

The Russians completed the occupation of the island of Oesel at the entrance to the Gulf of Riga.

After three days' intense fighting, in Italy, the Eighth Army drove the enemy from his positions on the rivers Montone and Cosina.

From Saipan (Marianas) U.S. heavy bombers made a successful attack on Tokyo.

At night heavy bombers from Italy attacked targets in southern Germany and Austria (Munich and Linz).

25th November.—In Holland the Allies made progress North of Venlo. On the Aachen-Cologne road Weisweiler was reached. East of Metz the advance neared Sarreguemines. Strasbourg was cleared of the enemy except for the defenders of the Rhine bridges.

A very large force of U.S. heavy bombers attacked the Leuna synthetic oil plant at Merseburg and oil stores and railway yards at Bingen.

In Italy the Eighth Army reached the outskirts of Faenza.

South-East Asia Command announced that African forces were converging upon Kalewa (Chindwin river), from which the Japanese were reported to have withdrawn. Chinese troops were closing in on Bhamo (Irrawaddy).

The U.S. Navy Department announced that twenty-seven Japanese vessels had been sunk by U.S. submarines in Far Eastern and Pacific waters; also that 4,500 tons of shipping had been sunk by Dutch submarines.

At night the R.A.F. bombed targets at Nuremberg and other places in western Germany.

Successful night attacks were made by Coastal Command, R.A.F. upon shipping in the Skagerrak.

26th November.—In eastern Holland the Allies continued to close up to the river Maas, in the region of Venlo. On the Aachen-Cologne road Weisweiler was captured. South-West of Merzig the Allies reached Oberesch. The advance East of Metz continued.

U.S. heavy bombers in great strength attacked the oil plant at Misburg, a railway viaduct at Bielefeld and railway yards at Hamm. Thirty-six bombers and six fighters were lost; 146 German aircraft were destroyed.

In Czechoslovakia Russian forces occupied Michal Ovce and Humenne. The Russian advance in Hungary continued.

27th November.—In the early morning the R.A.F. attacked objectives at Munich, using 12,000-lb. bombs.

The Allies made some progress in the sector East of Aachen. East of Metz they entered St. Avold. Progress was also made in Alsace.

U.S. heavy bombers attacked the railway centres of Offenburg and Bingen. The R.A.F. bombed a marshalling yard in the Cologne district.

U.S. fighters, in great strength, made sweeps over Germany, destroying ninety-eight German fighters.

The harbour of Rhodes (Dodecanese) was bombed by the R.A.F.

Tokyo was again bombed by U.S. heavy bombers flying from Saipan (Marianas).

At night the R.A.F. attacked the railway centres of Freiburg and Neuss (near Düsseldorf), also Berlin.

28th November.—The Allies made progress East of Aachen and continued to advance in the Saar valley, in Alsace, and in the Belfort gap.

At night the R.A.F. bombed Essen and Neuss, and Nuremburg.

29th November.—The Allies gained ground as the result of a number of small attacks in the Geilenkirchen-Jülich sector. Some advantage was gained in the region East of Aachen, where counter-attacks were repulsed. Progress was made in the Saar valley, in the Vosges, and in Alsace.

U.S. heavy bombers in great strength attacked the oil refinery at Misburg, the railway yards at Hamm and other targets in North-West Germany. In the afternoon the R.A.F. bombed objectives in the Duisburg area, losing six bombers and one fighter.

The Russians announced the forcing of the Danube in southern Hungary with the capture of Mohacs and Pecs.

At night R.A.F. Coastal Command made thirteen attacks upon enemy shipping off the Frisian islands, doing considerable damage.

30th November.—The Allies reached the river Roer in the area of Linnich, East of Geilenkirchen, and pushed forward towards Jülich. Progress in the Saar valley continued, and advances were made in northern Alsace and East of Mulhouse.

U.S. heavy bombers attacked four synthetic oil-plants in the Leipzig area, and railway yards in the Saarbrücken region. Forty bombers and thirteen fighters were lost. The R.A.F. bombed three benzol plants in the Ruhr, losing two aircraft.

At night the R.A.F. dropped well over 2,000 tons of bombs, including 132,000 incendiaries, on Duisburg. Objectives in Hamburg were attacked also. We lost four aircraft.

The clearing of the approaches to Antwerp, which was open for shipping by the end of the month, had not been accomplished without cost. In the successful sea-landings on Walcheren, nine of the twenty-five support craft were sunk by the fire of the coastal batteries, and eight were damaged; and casualties were heavy. The weather was too bad for extensive air operations.

Subsequently, despite almost continuous rain, Allied pressure increased along the whole front from Holland to the Swiss border, against a desperate resistance. The heaviest fighting occurred on the Maas (Meuse) and the Roer, where an Allied advance threatened the Ruhr; East of Aachen on the road to Cologne; and in the valleys of the Saar and the Moselle. No spectacular or quick success was to be anticipated, for the Germans seemed prepared to pay a heavy price in order to prolong their resistance upon the frontiers of Germany.

It was significant that the heavy bomber operations of the Allied air forces were mainly concentrated upon German oil-plants. Up to the end of October the U.S. strategic air forces in Europe had dropped 580,000 tons of bombs and destroyed 15,210 enemy aircraft for a loss of less than 2 per cent.

The Russian armies were not yet ready to resume their invasion of East Prussia or to strike from Poland; but they had liberated Estonia completely and were making steady progress in Czechoslovakia and Hungary. On 6th November Marshal Stalin estimated that his forces were confronted by 180 German and 24 Hungarian divisions, while the enemy was engaging 75 divisions on the Western Front.

Greece having been cleared of the enemy, the Balkan Air Force was employed in harrying the German retreat through northern Albania and southern Yugoslavia towards the Sarajevo rail-heads.

The campaign in Burma had progressed well, both in the advance towards Mandalay by British, Indian and African troops and in the region of Bhamo, encircled by Chinese forces. On the other hand, the successes of the Japanese in South-East China were disturbing.

In the Pacific U.S. forces proceeded with the conquest of Leyte (Philippines), where a bitter resistance was offered by the Japanese garrison. No less than seven Japanese convoys had been destroyed by air attack during the enemy's attempts to bring in reinforcements, his losses being estimated at 25,000 men, 29 transports, 18 escort vessels.

Fewer vessels of the United Nations were sunk by U-boats during October than in any other month of the war. The U.S. submarine " Darter " was destroyed by her own crew to prevent her falling into enemy hands after she had run aground.

1st December.—North-East of Aachen heavy fighting occurred in the Linnich—Jülich sector. In the Saar valley the Allies established themselves on the West bank of the river North and South of Merzig. The advance in Alsace continued.

In Italy the Eighth Army made progress between the rivers Lamone and Montone.

At night the R.A.F. made a concentrated attack upon the German base and railway centre at Karlsruhe.

2nd December.—Fighting continued in Linnich. Some progress was made on the Saar. The Germans blew up three of the bridges over the Rhine near Strasbourg.

Allied heavy bombers attacked an objective at Dortmund and the railway yards at Coblenz.

From Italy Allied bombers attacked German communications in the Brenner Pass.

In Burma, East African troops entered Kalewa (Chindwin river) and the Japanese were reported to have evacuated Pinwe on the Myitkyina-Mandalay railway.

At night in their attacks on Germany the heavy bombers had Hagen as their principal objective.

3rd December.—Allied forces made good progress in an attack upon the last remaining enemy bridgehead on the Maas, West of Venlo. Ground was gained North-East, East and South-East of Aachen; in the Saar valley the river was crossed at Saarlautern, where fighting continued.

In North-East Hungary the Russians captured Satoralja-Ujhely and Miskolcz.

British naval and air forces attacked the German base on Lussin island in the Adriatic.

In Athens fighting broke out between the Government troops and the forces (E.L.A.S.) of the "Left" Wing of the National Liberation Group, British troops being involved in the effort to keep order.

U.S. heavy bombers from bases in the Marianas attacked Tokyo.

4th December.—In Holland the Allies gained full possession of the West bank of of the Maas. On the Roer fighting occurred on the outskirts of Jülich. The Germans continued to resist in Saarlautern.

Large forces of U.S. heavy bombers attacked railway yards and industrial centres at Kassel, Mainz, Soest, and other places in western Germany. A strong force of R.A.F. bombers attacked Oberhausen (Ruhr).

In Italy the Eighth Army captured Ravenna.

The U.S. Navy Department announced that 20 Japanese vessels, including a light cruiser and a destroyer, had been sunk by American submarines in Pacific and Far Eastern waters.

After dark a concentration of enemy shipping in the main port of Rhodes (Dodecanese) was heavily bombarded by H.M. ships "Aurora," cruiser, and "Musketeer," "Marne," and "Meteor," destroyers.

At night the R.A.F. in great strength attacked the railway centres of Heilbronn, Karlsruhe and Hagen.

5th December.—On the Saar front the U.S. Third Army crossed the German frontier, clearing Saarlautern. Selestat was captured by the U.S. Seventh Army.

U.S. heavy bombers attacked targets in Berlin and railway yards at Münster. Ninety-one German fighters were shot down in combat over Berlin. The R.A.F. bombed the railway yards at Hamm.

R.A.F. Coastal Command made successful attacks upon enemy shipping off the coast of Norway.

Russian forces advanced in Hungary between Lake Balaton and the river Drava. In Yugoslavia Russians and Yugoslavs made progress between the Drava and the Sava.

Heavy fighting occurred between the police and the gendarmerie, and the troops of the Greek "Left" Party (E.L.A.S.) in the Athens-Piræus area, British troops being again engaged.

At night the R.A.F. bombed the railway yards at Soest and targets at Ludwigshafen and Nuremburg.

6th December.—The U.S. Third Army entered Sarreguemines where fighting persisted. North-West of the town the Saar was crossed at four points.

U.S. heavy bombers attacked the Leuna oil plants near Merseburg, railway yards at Bielefeld and other targets. Four bombers and two fighters were lost.

The Russians made notable advances between Lake Balaton and the Danube, and between the lake and the Drava. In Yugoslavia the combined forces captured Sid.

Allied bombers from Italy, co-operating with the Russian armies, bombed points on the railway at and eastward of Vienna. Operations ranged from Slovakia to the Austro-Hungarian frontier and Maribor in northern Yugoslavia.

In and around Athens British troops were engaged in support of the Greek regular troops against the E.L.A.S. forces.

Japanese aircraft raided the U.S. air base at Saipan (Marianas.)

At night the R.A.F. attacked the Leuna oil plant near Merseburg, railway and industrial centres at Osnaburg and Giessen, and Berlin, dropping 350,000 incendiaries besides high-explosive. Twenty-one aircraft were lost.

7th December.—Fresh progress was made beyond the river Saar. The U.S. First Army made limited attacks East of Aachen.

Russian advances continued on either side of Lake Balaton, the enemy being cleared from the southern shore of the lake.

Fighting in Athens continued, the Royal Navy and the R.A.F. coming into action against the rebel forces.

U.S. air and sea forces attacked the Japanese air base at Iwo Jima (Volcano islands) between Saipan (Marianas) and Japan.

In the Philippines U.S. forces made a successful landing at Ormoc, on the West coast of Leyte. A Japanese convoy of reinforcements was annihilated in the near vicinity, the enemy losing 13 ships, 4,000 men and 69 aircraft by air attack.

U.S. heavy bombers attacked industrial objectives in Manchuria. Three aircraft were lost, but more than 60 Japanese aircraft were destroyed or damaged. Tokyo was bombed also.

8th December.—Heavy fighting occurred in the Siegfried defences North-West of Saarlautern. U.S. troops made fresh crossings of the Saar. Fort Driant, West of Metz, was captured.,

The R.A.F. bombed the railway system at Duisburg and the oil plant in the same area.

In Italy British troops of the Eighth Army made progress towards Faenza.

9th December.—In the Jülich area organized enemy resistance ceased on the western side of the Roer river.

U.S. heavy bombers attacked the railway yards and an airfield at Stuttgart. Four bombers were lost.

Russian forces reached the Danube on a broad front North of Budapest and effected another crossing of the river South of the city, linking with the advance up the western bank.

10th December.—East and North-East of Aachen (Düren sector) the U.S. First Army gained ground. In Alsace U.S. forces attacked Haguenau where fighting continued.

U.S. heavy bombers attacked the railway centres of Bingen and Coblenz.

A pact between the U.S.S.R. and France (de Gaulle administration) was signed in Moscow.

In Italy, before Faenza, the Germans counter-attacked without success.

The R.A.F. attacked concentrations of E.L.A.S. guerrillas East of Athens. Fighting in the capital continued.

The appointment was announced of Admiral Sir Bruce Fraser to command the British Pacific Fleet (based on Australia) and that of Vice-Admiral Sir Arthur Power to command the East Indies Fleet.

In the Philippines U.S. forces captured Ormoc on the island of Leyte.

11th December.—U.S. forces closed up to the western bank of the Roer between Jülich and Düren. South of Düren some progress was made against an obstinate resistance. The American advance continued East of Sarreguemines. Haguenau was cleared of the enemy.

The biggest force of U.S. heavy bombers yet employed carried out raids upon the German railway centres of Frankfurt, Giessen and Hanau. Twelve bombers and two fighters were lost.

The R.A.F. bombed oil plants at Meiderich, Bruckhausen and Osterfeld and the railway yards at Osterfeld. One bomber was lost.

The Russian armies closed in on Budapest from South and North. Fighting was reported in the city.

Allied bombers from Italy attacked objectives at Vienna, Moosbierbaum and Graz.

12th December.—The U.S. First Army closed in on Düren. Farther South German resistance upon the thirty-mile front from Strasbourg to Selz collapsed, the U.S. Third Army advancing through the Maginot defences.

A large force of U.S. heavy bombers attacked the Leuna oil-plant, also railway yards at Hanau, Aschaffenburg and Darmstadt. Nine bombers and nine fighters were lost.

The R.A.F. bombed targets at Witten in the Ruhr.

The Russians gained successes in Hungary, North and North-West of Miskolcz and on the North-eastern side of Budapest.

In Italy after severe fighting Canadian troops of the Eighth Army approaching Faenza established themselves beyond the river Lamone.

U.S. heavy bombers from Italy attacked the Blechhammer oil-plant in Silesia.

Field-Marshal Alexander, who paid a flying visit, and Mr. H. Macmillan, Resident Minister in the Mediterranean, arrived in Athens. Lieut.-General Scobie, the British commander, stated his terms to the rebels: disarmament and departure. Fighting in Athens continued.

On this and the previous day U.S. aircraft attacked a Japanese convoy North-West of Leyte, sinking three transports and three destroyers.

At night the R.A.F. bombed Essen and Osnabruck.

13th December.—The U.S. First Army advanced South-South-East of Düren (Monschau). Jeanne d'Arc, the last of the Metz forts, fell. The U.S. Seventh Army continued to advance towards the Rhine North of Strasbourg.

Fighting continued in Athens while peace negotiations proceeded.

U.S. heavy bombers from Saipan attacked Nagoya (Japan).

14th December.—The U.S. Ninth and First Armies extended their hold of the western bank of the Roer. The Third Army advanced between the rivers Saar and Blies, while the Seventh Army neared the German frontier opposite Karlsruhe. At the southern end of the front (Colmar-Mulhouse) the Germans counter-attacked and gained some ground.

In Hungary the Russians continued to make progress North and North-East of Miskolcz.

In Athens, where British reinforcements from Italy arrived by air on this and the previous day, fighting occurred in the centre of the city. Peace negotiations continued.

U.S. heavy bombers from India attacked Rangoon and Bangkok.

The U.S. Navy Department reported that a German attempt to establish bases on the North-East coast of Greenland had been defeated. Three enemy trawlers were lost.

15th December.—The U.S. Seventh Army pushed forward to the Siegfried defences on a broad front between Wissembourg and Lauterbourg. In the Colmar-Mulhouse sector the Germans were checked and some ground was regained by the First French Army.

U.S. heavy bombers attacked the railway centres at Hanover and Kassel.

The R.A.F. used 12,000 lb. bombs in an attack upon German R-boat and E-boat pens in Ijmuiden.

Allied heavy bombers from Italy attacked Rosenheim (Germany), Innsbruck, Linz, Salzburg, and Amstetten.

Peace negotiations continued in Athens although fighting persisted in the city and the Piræus.

In Burma the town of Bhamo, invested by Chinese forces for nearly a month, was captured by assault. Satisfactory progress was reported on the Chindwin front and in a new offensive in Arakan.

U.S. forces landed on the island of Mindoro, South of Luzon, (Philippines), against feeble opposition.

At night the R.A.F. bombed Ludwigshafen, Hanover, and Osnabruck.

16th December.—The Allied extended their hold of the western bank of the Roer, repulsing German counter-attacks in the Lindern sector. Further progress was made beyond the Saar and across the Palatinate border.

The R.A.F. bombed the railway and industrial centre of Siegen, U.S. heavy bombers attacked railway yards in the northern suburbs of Stuttgart.

In Italy, after three days of heavy fighting, the Eighth Army captured Faenza, which was entered by New Zealand troops.

U.S. heavy bombers from Italy attacked Brux in Czechoslovakia.

The Greek "Left" Party agreed to the withdrawal of the E.L.A.S. forces from Athens, but stipulated, among other conditions, that a "Government of National Unity" should be formed. Fighting in the city continued.

In Burma the advance from the Chindwin linked up with that moving southward from Indaw along the railway.

17th December.—**Strong German counter-attacks** against the U.S. First Army **led to penetration across the Belgian and Luxembourg frontiers** at three points. The Seventh Army continued to advance into the Palatinate.

The Russians in Hungary extended their gains beyond Miskolcz, capturing Putnok. Progress was made, also, North-East of Budapest.

U.S. heavy bombers from Italy attacked oil-plants at Blechhammer and Odertal, railway yards at Salzburg and an objective at Wels. Forty-eight German aircraft were shot down; twenty-one heavy bombers and eight fighters were lost.

At night the R.A.F. bombed industrial targets at Ulm.

18th December.—The German counter-offensive continued in Belgium and Luxembourg, progress of fifteen miles being reported in the direction of Malmédy (Belgium).

U.S. heavy bombers attacked Cologne, Coblenz, and Mainz.

In North-East Hungary the Russians made further progress in the region of Miskolcz and occupied the Slovak frontier for a distance of seventy miles.

In Italy the Eighth Army closed up to the river Senio, beyond Faenza.

Heavy bombers from Italy bombed the Silesian oil-plants at Blechhammer Odertal and Oswiecim. Other objectives were railway yards at Graz and in the Vienna area.

Outside Athens British forces began to clear the road to Phaleron Bay.

U.S. heavy bombers from Saipan attacked Nagoya (Japan) and Hankow (China).

The U.S. Navy Department announced that American submarines had sunk thirty-three Japanese vessels, including twelve naval craft.

At night the R.A.F. bombed German shipping in the harbour at Gdynia.

19th December.—The main weight of the German counter-offensive appeared to be developing in the Ardennes. Enemy resistance stiffened in the Saar sector and in the Palatinate.

U.S. heavy bombers attacked German communications opposite the First Army from Trier to Gemund.

Russian forces made marked progress in Czechoslovakia in the region of Kosice and also North-West of the Hungarian town of Miskolcz.

Marshal Tito announced the capture of Podgorica (Montenegro) and Remeke (near Zagreb).

In Greece British forces proceeded with the clearance of the road from Athens to Phaleron Bay.

U.S. heavy bombers attacked Omura and other places in southern Japan ; also Shanghai and Nanking.

20th December.—The U.S. First Army drove the Germans from Monschau and strengthened its resistance in the region of Malmédy and Stavelot. In the Palatinate the Seventh Army was heavily engaged in the Siegfried defences.

Heavy bombers from Italy, in great strength, attacked Pilsen, Regensburg, Linz, Salzburg and Villach.

South-East Asia Command reported that, in the Arakan " coastal corridor " of Burma, West African troops had occupied Kaudaung (six miles South-East of Buthidaung). The advances southward between the Chindwin and the Irrawaddy had made good progress.

British naval carrier-borne aircraft attacked the harbour of Belawan-Deli on the East coast of Sumatra. Much damage was done to oil installations. Later in the day enemy airfields and anchorages in the Sabang area were bombed with success.

Before dawn Tokyo was bombed by U.S. heavy bombers from Saipan.

21st December.—The U.S. First Army was reported to have recaptured Stavelot. In the centre the German thrust through the Ardennes continued.

The R.A.F. bombed Trier.

U.S. heavy bombers attacked the aerodrome at Luzon, near Manila, destroying about one hundred Japanese aircraft.

Aircraft industrial plants at Mukden in Manchuria were attacked by U.S. heavy bombers. Two bombers were lost ; the Japanese lost fifteen aircraft and many more were damaged.

At night the R.A.F. bombed Cologne, Bonn and Stettin.

22nd December.—The northern German advance halted in Belgium about St. Vith, Stavelot and Malmédy. Farther South heavy fighting occurred in the region of Bastogne. The Germans were definitely checked around Echternacht near the Luxembourg frontier.

The Russians continued to make progress in Czechoslovakia and North-East Hungary.

In Italy, after several days fighting, persistent German counter-attacks were repulsed by the Eighth Army, the enemy withdrawing from the Lamone river line.

U.S. heavy bombers from Saipan attacked Nagoya (Japan).

At night the R.A.F. bombed Coblenz and Bingen.

In night engagements light coastal forces repulsed a number of E-boats which endeavoured to attack our convoy routes off the Scheldt. Two of the enemy craft were sunk, two probably sunk, and four others hit. H.M. ships engaged included the destroyer " Walpole," the frigates " Curzon " and " Torrington," and the corvette " Kittiwake."

23rd December.—The R.A.F. bombed Trier and other targets in the Rhineland. U.S. heavy bombers attacked the railway centres at Ehrang and Kaiserslautern and other objectives behind the German front.

South-East Asia Command announced the capture of Tigylang (Irrawaddy) and further progress in the advance from the Chindwin and in Arakan.

At night the R.A.F. bombed railway targets North-East of Bonn and East of Coblenz.

24th December.—In Belgium the German advance reached Celles (four miles from the Meuse at Dinant) and Ciney (nine miles North-East of Dinant). American pressure on the enemy's southern flank continued in the direction of Bastogne.

U.S. heavy bombers in great strength attacked the German supply routes from Eisenkirchen southward to Trier, and also many airfields near Frankfurt.

25th December.—U.S. heavy bombers attacked the enemy's supply routes close behind the battle-front in Belgium.

The Russian operations round Budapest made progress, and further successes were gained in Czechoslovakia.

Mr. Winston Churchill arrived in Athens by air.

A small number of Japanese bombers made a night raid on eastern Bengal; two were shot down and two damaged.

26th December.—In Belgium on the northern flank of the German salient an enemy attack was repulsed. Malmédy, Stavelot, and Staumont remained in Allied hands. German pressure in the direction of Dinant continued. Attacks of the U.S. Third Army gained ground on the southern flank, linking up with the U.S. forces cut off in Bastogne.

The R.A.F. bombed the German advanced railhead at St. Vith (midway between Aachen and Trier). U.S. heavy bombers attacked railway yards near Coblenz and railway bridges North of Coblenz.

Russian forces completed the encirclement of Budapest and were fighting in the western suburbs of the city.

In Italy the Germans attacked the Fifth Army East and West of Gallicano.

Mr. Winston Churchill, in Athens, addressed a conference of the representatives of the Greek factions, the Archbishop of Athens presiding. Spasmodic fighting continued.

U.S. naval and air forces attacked the Japanese air-bases at Iwo Jima (Volcano islands).

27th December.—**The German thrust towards the Meuse was halted**, enemy columns being driven from Celles and Ciney. U.S. forces made further progress against the southern flank of the salient.

U.S. heavy bombers in great strength operated against the German supply routes: Euskirchen, Andernach, Homburg, Fulda and Gerolstein. The R.A.F. bombed the railway junction at Rheydt.

The Russians continued their advance into Czechoslovakia. In Hungary they pressed their attacks in Budapest, and cut off considerable enemy forces North of the city. They also moved towards the Austrian frontier.

In Italy the Germans captured the towns of Braga and Gallicano from the Fifth Army.

Mr. Winston Churchill stated that if the Greek conference brought no solution, British troops would be employed in sufficient force to occupy the whole of Athens and Attica.

South-East Asia Command announced that on the Arakan front the XV Indian Corps had obtained control of the Mayu estuary.

The U.S. Navy Department stated that American submarines had sunk twenty-seven more Japanese craft, including many naval vessels among which was a carrier.

28th December.—In Belgium the Germans appeared to have no considerable forces West of the line Rochefort-St. Hubert and were making no attempt to advance at any point of the salient.

U.S. heavy bombers attacked Coblenz and other communication centres.

The Russians continued to make progress in Budapest and through Czechoslovakia.

Mr. Winston Churchill left Athens for London. It was announced that the British would counsel King George of the Hellenes to agree to the establishment of a regency. Fighting in Athens continued, British troops being engaged in clearing some quarters of the city.

At night the R.A.F. attacked railway targets at Bonn and München-Gladbach.

29th December.—In Belgium U.S. forces made progress towards Rochefort and, on the southern flank of the salient, did likewise East and West of Bastogne.

A strong force of U.S. heavy bombers attacked the railways at Coblenz, Frankfurt, Bingen, and Aschaffenburg.

The R.A.F. used 12,000 lb. bombs in an attack upon E-boat and R-boat berths at Rotterdam.

In Italy U.S. troops of the Fifth Army reoccupied Braga.

After 48 hours fighting British troops cleared most of the south-eastern quarter of Athens.

At night the R.A.F. bombed the railway centre of Troisdorf near Bonn, and the oil-plant at Scholven-Buer in the Ruhr.

30th December.—In Belgium heavy fighting occurred near Rochefort. The U.S. Third Army extended its operations round Bastogne in spite of German counter-attacks from East and West.

A large force of U.S. heavy bombers attacked railway yards at Mannheim, Kaiserslauten, and Kassel.

The Russians made successful advances in the region of Lucenec (Czechoslovakia) and drove deeper into Budapest.

The King of the Hellenes appointed Archbishop Damaskinos Regent of Greece. Fighting continued in Athens where British troops cleared nearly half the city.

U.S. aircraft sunk or damaged five Japanese freighters, two destroyers, and a destroyer escort in the Lingayan Gulf.

At night the R.A.F. bombed Hanover and railway targets at Cologne.

31st December.—In Belgium fighting continued in the area of Bastogne, where German counter-attacks persisted. Allied troops were in possession of Rochefort.

A large force of U.S. heavy bombers attacked oil-plants, U-boat yards and aircraft works in the Hamburg region, railway yards in the Ruhr, and bridges over the Rhine and Moselle. The R.A.F. bombed Vohwinkel and Osterfeld.

Gestapo headquarters in Oslo was bombed by the R.A.F.

The Russians advanced further into Czechoslovakia and pressed on through Budapest. The enemy forces encircled North-West of the city were destroyed.

A provisional Government consisting of the old Committee of National Liberation was formed in Lublin. The Polish Government in London protested.

The Greek Government resigned. Fighting in Athens continued.

In Burma the advance from the Chindwin approached the rail-head town of Ye-U. Chinese forces which had crossed the frontier into China consolidated their position in the area of Loi-wing.

U.S. heavy bombers, in considerable strength, attacked objectives on Luzon (Philippines).

Tokyo was attacked by U.S. heavy bombers.

At night R.A.F. Mosquitoes carried out a heavy attack upon Berlin.

The enemy counter-offensive in the Ardennes, launched with great skill, was doubtless intended to disrupt the Allied plans; probably it was also needed to sustain the failing morale of the German armies and people. A surprise was undoubtedly achieved, the prevailing fog proving of great advantage to the enemy. Supplementing the efforts of the lighter aircraft, the British and American heavy bombers were employed against road and rail communications close behind the German front, and must have played a great part in bringing the counterstroke to a standstill. In the first twelve days, despite fog conditions, Allied aircraft made 33,000 sorties and dropped 35,000 bombs. Allied fighters shot down or damaged 1,088 enemy aircraft; our total loss was 298.

On 1st December the Russians estimated that they were faced by 220 enemy divisions, 200 of them German. The desperate and hopeless defence of Budapest by the Germans was probably intended to stave off the inevitable advance upon Vienna for as long as possible.

Allied bombers from Italy continued to co-operate with Russian and Yugoslav forces in the Balkans, air attacks being regularly delivered upon German communications and bases and upon industrial targets in Austria and Silesia.

The lamentable state of affairs in Greece was typical of the evils following a German occupation. Up to the completion of the expulsion of the common enemy Greece and Crete had cost us 40,000 casualties, nearly 500 aircraft, 120,000 tons of shipping and 69 war vessels, including five cruisers, in addition to more than 30 damaged. Among the latter were three battleships and twelve cruisers.

The British advances in Burma—in Arakan towards Akyab and from the Chindwin and down the Irrawaddy "railway corridor"—were gratifying in the extreme. The reconquest of the country, however, could hardly be accomplished without amphibious operations: perhaps some significance could be attached to the reorganization of British naval commands in the East Indies and the Far East. (see 10th December).

In the Pacific U.S. forces had waged almost continuous sea and air warfare in the vicinity of Leyte. The American landing on Mindoro (see 15th December) was a fine achievement. U.S. aircraft made regular attacks upon the Japanese airfields at Iwo Jima (Volcano islands) in order to protect their own base at Saipan in the Marianas.

During Christmastide flying bombs fell on northern as well as southern England which was under intermittent bombardment throughout the month. Civilian casualties in Great Britain for the first eleven months of 1944 numbered 8,098 killed and 21,137 seriously injured.

Shipping losses increased during December, U-boats becoming more active. It appeared that they could now submerge for longer periods and were able to remain at sea for longer periods without taking in fresh supplies.

The loss was announced of H.M. frigate "Bullen" and of H.M.C. Corvette "Shawinigan" which was sunk in the North Atlantic. The U.S. submarine "Seawolf" was reported missing.

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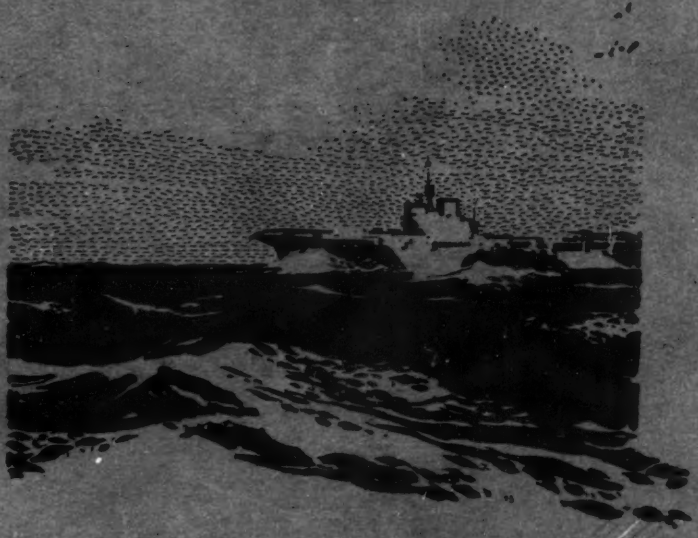

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